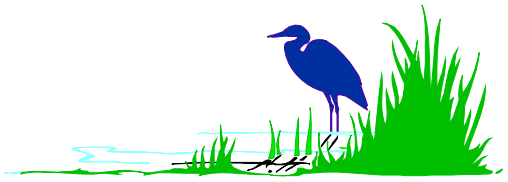
Mason County's
On-Site Sewage System Management Plan
As Required by WAC 246-272A



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Prepared in cooperation with Jefferson County Public Health

Mason County's
On-Site Sewage System Management Plan

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Executive Summary

Purpose of the plan

The purpose of the on-site sewage system (OSS) management plan is to provide guidance, focus and direction to Mason County's onsite sewage program over the next five years. The management plan will guide the policies and procedures for the design, installation, operation and maintenance of onsite sewage treatment systems in Mason County to prevent health hazards and risks and to improve, restore and preserve water quality.

Organization and Plan Framework

Mason County contracted with Jefferson County Environmental Health to write Mason County's Onsite Sewage Management Plan in coordination with the plans for Jefferson County and Kitsap County. Mason County Public Health's onsite sewage management plan is organized into seven parts. The first part is an Executive Summary containing a brief history and a summary of planned activities for the onsite sewage program. The remaining six parts are based on guidance the Washington State Department of Health (DOH) provided to the Health Department. The two guidance documents provided by DOH were the On Site Sewage System Management Plan: Guidance for the Twelve Puget Sound Counties (June 2006) and Marine Recovery Areas Guidance (October 2006). These documents, provided to all Puget Sound Counties required to develop an onsite sewage system management plan, provide the structure of the plan to help assure similar goals are achieved. The other document used to develop the plan was Onsite Sewage Systems Chapter 426-272A WAC (July 2007).

Mason County's Onsite Sewage Management Plan is an opportunity for Mason County to enhance its management of OSS and is based on the requirements set forth in Washington Administrative Code 246.272A.0015, "Local Management and Regulation", "Third Substitute House Bill 1458" relating to the management of OSS in marine areas, and Revised Code of Washington 70.118A.030 "Local health officers to develop a written onsite program management plan".

Mission Statement

It is the mission of Mason County Public Health's onsite sewage program to bring all the on-site sewage systems in the county to performance standards, set by the Washington State Department of Health, by 2020.

This will be achieved through application and enforcement of Mason County Code Title Six Chapter 6.76. This regulation is being amended by Environmental Health staff and the Mason County Onsite Advisory Committee and will be available for public comment in the first quarter of 2008 and will be presented for final approval to the Mason County Board of Health in June 2008. Mason County Public Health will work with the community to finalize the regulations prior to final approval by the Board of Health. These rules and regulations will assure the continued performance of on-site sewage treatment systems in Mason

County for the life of the system, and therefore protect and preserve public health and water quality in Mason County.

Onsite Sewage Management Plan Goals

The primary goal to achieve this mission is to permit, track the design, installation, operation and maintenance of all on-site sewage systems by 2012. In order to achieve this goal, the Health Department will:

1. Inventory all assumed and unknown onsite sewage systems in Mason County by July 2012 beginning Marine Recovery Areas;
2. Determine the operational status of all onsite sewage systems in Mason County by July 2012;
3. Ensure the repair of all known failures by July 2012 and thereafter, are completed within three months of identification;
4. Reduce the incidence of failing onsite sewage systems and ultimately prevent failures of onsite sewage systems in Mason County; and
5. Improve and restore water quality by 2012 in Marine Recovery Areas and other impaired water bodies in Mason County to acceptable levels to the extent they have been impacted by failed or inadequate onsite sewage treatment systems.
6. Manage onsite sewage system operations and maintenance (O&M) by means of database tracking, education and outreach efforts and enforcement.
7. Refine an already established onsite sewage system O&M inspection procedure.
8. Establish a structure of incentives, fines and penalties to enforce the rules and regulations.
9. Consider science-based best practices and all available tools such as point of sale reporting, non-point ordinances, and/or property easements, etc. in developing new rules and regulations.

Measurable Program Objectives

Measurable objectives to determine if the onsite management plan goals have been achieved include:

1. Increase the number of onsite sewage systems in the inventory of the Carmody O&M Database from the current numbers (24,300) to 100% of onsite sewage systems in Mason County by 2012;
2. Increase the number on onsite sewage system inspections each year to approximately 12,346 per year (6,155 gravity and 6,191 non-gravity) by 2012, or approximately 50% of all onsite sewage systems inspected annually;
3. Analyze the number of failures identified and assure by 2012:
   a. 100% of identified failures are repaired within three month of identification,
   b. that failing onsite sewage systems are reduced over time (thereby indicating that prevention efforts are effective);
4. Improve and restore degraded fresh and marine waters as to fecal coliform standards, dissolved oxygen standards and shellfish growing area standards to the extent they have been impacted by failed or inadequate onsite sewage treatment systems by 2012; and

5. Maintain indefinitely those water quality standards in fresh and marine waters that currently meet standards as to potential impact by onsite sewage treatment systems.
6. Develop a non-point ordinance to enhance our enforcement capability

Strategies for Achieving the Objectives

Strategies to achieve the measurable objectives include:

1. On-site sewage permit and O&M data analysis through a process of:
   a. database enhancement;
   b. data "scrubbing" (to correct inaccuracies) of current and archived data to assure accurate and current data;
   c. Retrieval and sorting of data;
   d. Assigning new and old OSS permits to appropriate parcels.
2. Identifying marine recovery areas (MRA's)
3. Identifying sensitive areas that have the potential to impair and impact marine or fresh waters;
4. Informing property owners in MRA's and sensitive areas of their OSS status and the resources available to maintain their systems;
5. Developing and expanding community and public involvement with the Onsite Advisory Committee;
6. Continuing to provide educational and outreach resources;
7. Providing information about financial resources such as low interest loans for repair of failures; and
8. Providing penalty and incentive mechanisms for O&M inspection compliance.
9. Incorporating program evaluation and quality improvement suggestions in routine audits of licensed onsite professionals (installers, pumpers, O&M specialists).

Program Challenges and Resources Needed for Full Implementation

There are several needs that must be met for full implementation of this plan. It will be possible to gain efficiencies with improvements to data entry, but full implementation will be dependent upon identifying and obtaining financial and personnel resources.

1. Data Management
   a. Database enhancement is proposed to allow query and report capabilities.
   b. Staff time limitations for entering and analyzing data.
   c. Creation of a GIS layer to show onsite sewage system information for each parcel.
2. Education & Outreach
   a. Update and reprint Septic System User Manual.
   b. Mass educational mailing to approximately 25,000 septic system owners.
   c. Staff time limitations for attending meetings and events.
   d. Enhancement of the Onsite Program portion of the Public Health web page.
3. Staff Time Limitations
   a. Enforcement; is currently prioritized based on risk; lower risk complaints cannot be addressed due to staffing constraints.

b. GIS limitations; there is limited time for Mason County GIS Department staff to assist the Health Department with GIS development and limited time for Health Department staff to be trained on how to use the current GIS system.
c. Community Outreach; Due to field-work time constraints, staff is unavailable to address this time intensive process.
d. Space constraints limit the number of staff available to perform all aspects of the plan.

4. Industry Limitations
    a. There are not enough certified O&M provider limitations and capacities to meet the demand.
    b. Onsite sewage system designer capacity to meet increased demand for repairs.
    c. Onsite sewage system installer capacity to meet increased demand.
    d. Onsite sewage system pumper capacity to meet increased demand.
5. Code Revisions
    a. Revise local onsite regulation to reflect changes to the new WAC and state guidance documents.
    b. Identify funding to allow for incentives for property owners to obtain an O&M inspection in a timely manner.
    c. Revise local enforcement policy to allow enforcement of O&M inspection requirements.

Funding

Current funding through permit fees, state dollars and Department of Ecology Centennial Clean Water fund grants covers the cost of all current activities in the onsite sewage and operations and maintenance programs in Mason County (approximately $485,000 in 2008). To fully implement the Mason County onsite Sewage Management Plan, would require two additional full-time equivalent Environmental Health Specialist positions and an additional half-time support staff position, which would require an additional $200,000 annually in the OSS program. This additional staffing would allow one full time staff to manage the O&M data base, clerical support for the increased workload on the onsite staff, and additional time for field staff to follow up on problem O&M service reports, to audit the performance of certified professionals and enhance our current education and outreach program.

Additionally, Mason County has a robust program for repairs to failing onsite sewage systems via low interest loans through Shore Bank Cascadia Enterprise's loan program for residents in the three Hood Canal Counties. As other loan programs become available, residents will be made aware of those as well.

Introduction

History of On-Site Sewage Management in Mason County

On-Site Sewage System (OSS) Management in Mason County began in the 1950s under the joint jurisdiction of Mason and Thurston Counties. County oversight of OSS has adapted and improved over the years. For example, during the period between the 1950's and the 1970's OSS permits were required but OSS designs were not. In 1984, Mason

County Public Health began requiring OSS design submittal and approval prior to system installation. In 1992, the County began tracking all permits in a single database, which provided for increased oversight of on-site sewage system installation. However, the County still lacked a mechanism for ongoing oversight of operation and maintenance activities with respect to OSS systems.

In 2003, Mason County received the Centennial Clean Water Fund Grant that allowed Mason County Public Health to electronically store and retrieve data for the purpose of monitoring on-site maintenance activity. With funds from this grant, Mason County Public Health sent educational materials and septic records to all homeowners in the Lower Hood Canal Watershed. Upon completion of the Centennial Grant activities, reminder notices were sent to homeowners for whom the County had no record of septic maintenance. The first of these mailings occurred in December 2004 with a strong initial return rate demonstrating septic inspection and maintenance. A schedule for sending these reminders out was developed for new systems added to the database and for existing systems past due for service.

Developing the database to include the rest of the county has been a priority for Mason County Public Health. Mason County Public Health has downloaded all known permitted septic systems to its O&M database and is coordinating efforts with the Assessor's Office and the GIS Department to locate all unknown OSS systems to incorporate them into the monitoring program.

Mason County Public Health's O&M program has been constantly evolving. The County has partnered with the community, through education and outreach activities, to insure more effective monitoring and follow-up of on-site sewage systems and to address water quality and environmental health concerns throughout Mason County.

Legal Authority

In July 2005, the State Board of Health adopted new on-site sewage system (OSS) rules, which became effective in July of 2007. These new rules required Mason County Public Health to write a plan for the development and management of all OSS within its jurisdiction. Then, in March 2006, the Legislature added a new section to Title 70 RCW relating to the management of OSS in marine areas (Third Substitute House Bill 1458).

The intent of the rule and legislation is to provide greater assurance that existing OSS are not causing public health problems. By writing the Plan, Mason County Public Health is developing and enhancing processes to: inventory all OSS; identify sensitive areas throughout Mason County, including Marine Recovery Areas; establish Operation Monitoring and Maintenance (O&M) needs in the designated sensitive areas; inform homeowners of needed maintenance and follow-up for assurance; and develop procedures for identifying and repairing failing systems.

Mason County Public Health submitted this plan to Washington State Department of Health (DOH) by July 1, 2007.

Process Used to Develop this Plan

Mason County contracted Jefferson County Environmental Health to write Mason County Public Health's On-Site Sewage Management Plan (hereafter referred to as the Plan) in coordination with the plans for Jefferson County and Kitsap County. Dialogue with Clallam County and observation of their OSS Work Group process has also influenced the drafting of the plan. Under the guidance of the DOH's *On-Site Sewage System Management Plan: Guidance for the Twelve Puget Sound Counties*, the DOH's *On-site Sewage Systems Rules and Regulations*, current Mason County OSS Regulations and Standards, and consultation with Mason County Public Health OSS staff, the Mason County OSS Management Plan is constructed to comprise:

- Part 1: Describes Mason County Public Health's current OSS database activities and system structure, as well as plans for needed enhancements.
- Part 2: Provides background information on Mason County Public Health's environment and demographic trends and describes how Mason County identifies sensitive areas.
- Part 3: Describes Mason County Public Health's current OSS operations and maintenance (O&M) program and the changes Mason County Public Health plans to take to comply with the new state law both County-wide and in sensitive areas.
- Part 4: Describes Mason County Public Health's method in identifying Marine Recovery Areas and recommended strategies for management of such areas.
- Part 5: Outlines current and planned education efforts.
- Part 6: Timeline and summarization of implementation strategy for the scope of the Plan.

Jefferson County and Mason County Public Health (MCPH) OSS staff and administration reviewed the drafted Plan through June 2007 before the final submittal to Washington State Department of Health on July 1, 2007.

Part 1: Database Enhancement

1.1 Introduction

Mason County Public Health places a high priority to develop an Operation and Maintenance Program that is attainable within the resources available, and sustainable over time, to serve as an effective tool to monitor and manage OSS operation and maintenance. Electronic data management tools are essential to the Operation & Maintenance Program to effectively develop, store, maintain, and report relevant data for all onsite septic systems in the County

1.2 Activities

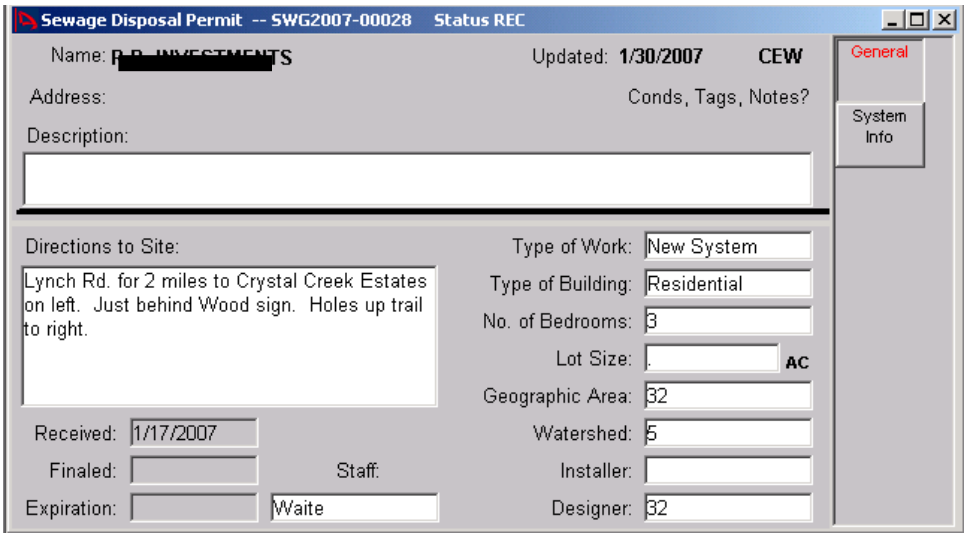
1.2.1 Mason County Onsite Data Management Systems

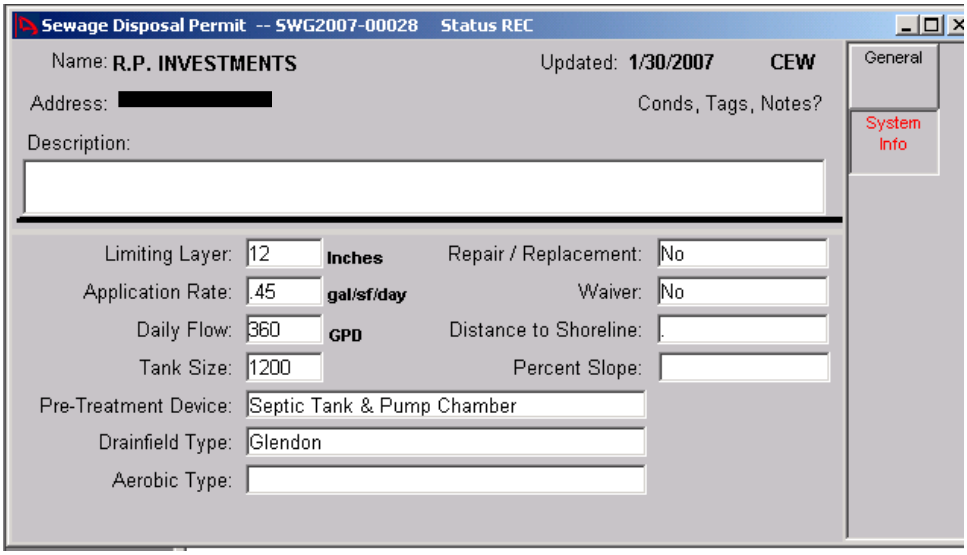
Mason County Public Health uses a commercial internet-based data management system developed by Carmody Data Systems in DeForest, Wisconsin. Carmody provides a "property file" that links system type, site address, watershed, and other site characteristics such as special area of study to the tax parcel number. This customized database also tracks and manages all inspection, pumping and maintenance events in the "maintenance " file. The Carmody software detects properties overdue for maintenance or inspection and flags these systems.

Mason County uses a separate database, using Accela's Tidemark Advantage software, for permitting.

The County Assessor database is also used to update property owner name and mailing address information for Operation & Maintenance homeowner mailings.

1.2.2 Tidemark: Onsite Permitting Data





Data entry screens from Tidemark

Tidemark is used to track permitting activity in Mason County including OSS permits.

Many data fields entered during the permitting process are useful and can be downloaded into Carmody.

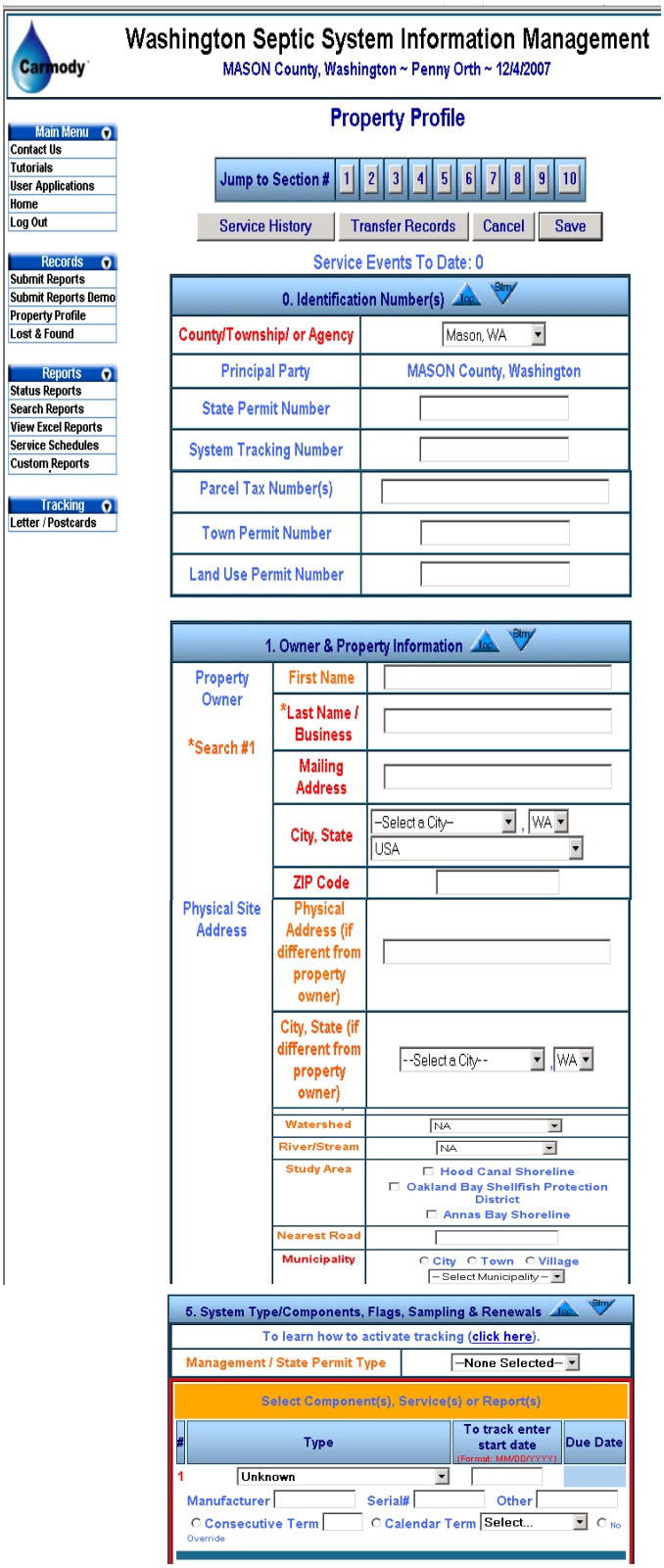
Currently the Tidemark data used to develop Carmody data are:

- Parcel number
- Site address
- Type of work
- Type of building
- Watershed
- Pretreatment devise
- Drainfield Type
- Repair/Replacement
- Installation Date

Tidemark provides flexibility for data fields that can be added and options available in drop down selection boxes. Future changes are planned to enhance downloads for the Carmody system data

Downloads from Tidemark are regularly scheduled to update the Carmody database, adding new systems and changing data for repaired systems. New records for Carmody are identified with repair permits for previously undocumented systems. New records for the Carmody database are also identified through water quality projects, complaints, building permits, and ongoing research done on parcel data from the assessor parcel download that had unclear use data.

1.2.3 Carmody Data System: Property Data



Carmody is used to track O&M for OSS in Mason County. The database contains two types of data for each record: property information and maintenance data

Property data fields used for Mason County's database include:

- Parcel Number
- Site address
- Type of system
- Maintenance Schedule
- Maintenance Due Date
- Watershed
- Special Study Area
- Municipality
- Type of Building
- Installation date

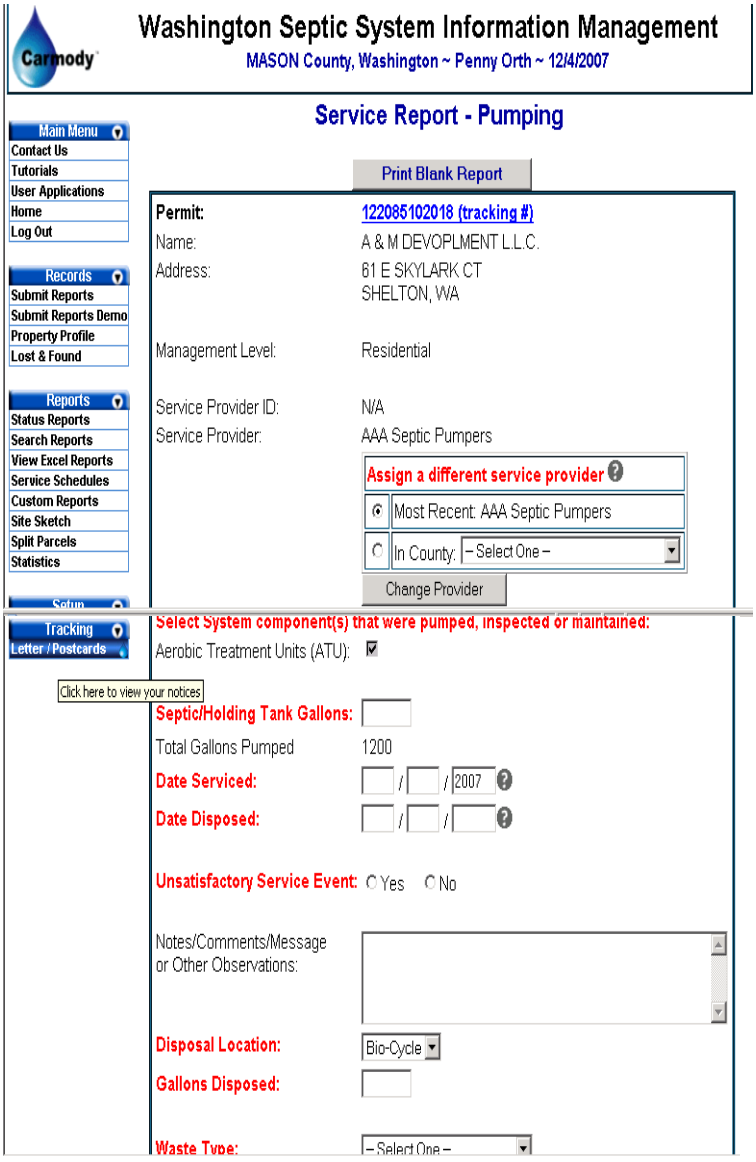
Maintenance schedules are assigned by type of OSS but Carmody allows for an override to the normal maintenance schedule for special maintenance requirements required independent of system type.

Ongoing updating of property data in Carmody includes:

- Adding new records from service reports for previously undocumented systems.
- Editing for duplicate records
- Updating data discovered in other project file searches.
- Adding data fields to identify special project characteristics.

Sample screens for Carmody property file data entry

1.2.4 Carmody Data System: Maintenance Data



Service data entry screen for a pumper report

Carmody Maintenance and Service data include:

- Date of maintenance
- Date of service
- Service Provider
- Type of service (inspection, pump, maintenance)
- System comments and service provider comments

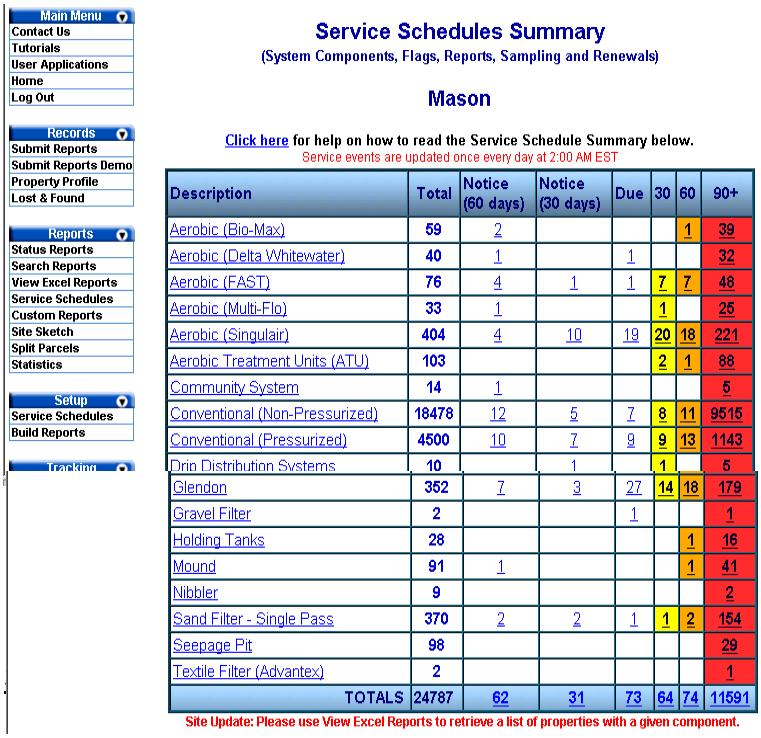
Data is provided by the reports pumpers and O&M specialists are required to submit to the County on a monthly basis. Currently three operation and maintenance specialists add service records directly into the database via their online access account with Carmody

Systems with unsatisfactory service events are flagged and added to a secondary file. Notices have been sent to homeowners with unsatisfactory events annually. Now, staff is reviewing these reports monthly, prioritizing them for risk to public health and is following up with property owners within ten days.

Remediation activities can be tracked in Carmody and an Excel file can be downloaded to assist in mailings directed to these homeowners

Copies of the required service report forms are found in **Appendix A**.

1.2.5 Carmody Data System: Reporting Data



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(System Components, Flags, Reports, Sampling and Renewals)

Mason

Click here for help on how to read the Service Schedule Summary below.

Service events are updated once every day at 2:00 AM EST

Description	Total	Notice (60 days)	Notice (30 days)	Due	30	60	90+
Aerobic (Bio-Max)	59	2				1	39
Aerobic (Delta Whitewater)	40	1		1			32
Aerobic (FAST)	76	4	1	1	7	7	48
Aerobic (Multi-Flo)	33	1			1		25
Aerobic (Singulair)	404	4	10	19	20	18	221
Aerobic Treatment Units (ATU)	103				2	1	88
Community System	14	1					5
Conventional (Non-Pressurized)	18478	12	5	7	8	11	9515
Conventional (Pressurized)	4500	10	7	9	9	13	1143
Drip Distribution Systems	10		1		1		5
Glendon	352	7	3	27	14	18	179
Gravel Filter	2			1			1
Holding Tanks	28					1	16
Mound	91	1				1	41
Nibbler	9						2
Sand Filter - Single Pass	370	2	2	1	1	2	154
Seepage Pit	98						29
Textile Filter (Advantex)	2						1
TOTALS	24787	62	31	73	64	74	11591

Site Update: Please use View Excel Reports to retrieve a list of properties with a given component.

Service Schedule Report

Carmody provides a standard report and screen display showing the number of records per system type and the number of those systems who are due for maintenance according to a maintenance schedule determined by the County.

Carmody provides a variety of standard and custom reports that can also be exported into an Excel format data file. These files are used to create mail-merge files for homeowner notification for OSS due for maintenance. Reports also support monitoring maintenance activity overall and for specific areas and system types. Reports may be generated monitoring service events submitted for each certified Pumper and O&M Specialist in Mason County. A duplicate report listing duplicate parcel numbers existing in the system will aid in the planned data maintenance activity listed in this plan.

New software enhancement will allow monitoring of the status of maintenance for properties flagged with special area designations or from an external set of parcel numbers exported into the reporting features.

1.3 Data Development

The Carmody O&M database was initiated with data downloads from existing databases created for previous sanitary surveys conducted from 1995-1999 in the Lower Hood Canal and Totten Little Skookum watersheds.

New system installations tracked in Tidemark since 1992 were downloaded into the O&M database.

In 2004 pumpers and O&M specialists were provided three-part reporting forms and required to provide one copy to the county and one to the homeowner. Maintenance reports identified additional systems for the Carmody database. Over 10,000 records that were not currently in the Carmody database were downloaded from the Assessor's tax

database for properties that appeared to be developed with residential structures. Properties served by public sewers were removed from the Assessor download.

Several assumptions were made for the date of installation. All systems from the Tidemark permitting data included the actual installation date. Systems not included in the Tidemark data and downloaded from the Assessor's data was assigned an installation date of 12/31/1992. Tidemark permit tracking was initiated in 1/1/1993 so the assumption is that these systems were installed prior to the Mason County's electronic permitting process was begun. These were assumed to be conventional gravity systems because most systems installed prior to 1993 were gravity. The use of pressurized systems was just beginning to be used. Further editing for installation date was based on systems for which we had maintenance reports that showed septic tank size of less than 1,000 gallons. These systems were assigned installation dates of 5/30/1974. The septic code changed on this date requiring a minimum tank size of 1000 gallons. Staff continually updates install dates when OSS records are reviewed for building permits, health letters, complaints, etc.

Currently O&M is tracked for approximately 25,000 septic systems in Carmody. Although the total number of OSS in Mason County is unknown, this number exceeds prior estimates. O&M reminders sent to homeowners in the O&M database have generated responses indicating that no OSS exists on their parcels allowing staff to remove undeveloped parcels from the database. Further research required for parcels marked as trailer parks in the assessor's data is pending to determine the number of OSS serving these sites. It is believed that the number of properties currently in the O&M database represents over 95% of OSS in Mason County. One measure of completeness of the database is that we rarely receive an O&M report from a professional that is for a system not currently in the database.

Mason County Public Health staff continues to work with Carmody to develop enhancements to the database which allows the county to more efficiently monitor and follow up with O&M for OSS in the county. Reporting capabilities have been developed to allow staff to report data in formats useful for water quality grant activities, enhance our ability to identify and communicate with onsite system owners, and to maintain and update the Carmody database.

Several data fields have been added to the Tidemark permitting program allowing more efficient updating for records in the Carmody Operation & Maintenance data system.

1.4 Planned Data Development to Support Mason County Onsite Sewage Management Plan

Enhance Operation & Maintenance database management software (Carmody) to improve the functionality of searching and reporting features in the system, develop documentation and improve maintenance activities and procedures, develop integration of Operation & Maintenance data and the Mason County GIS System

1.4.1 Carmody Software Upgrades for Reporting and Selection

A search and selection module will be developed and added to the software to allow an imported data file of parcel numbers or system tracking numbers to be used to select and then report property and maintenance data from the database. This feature will be an addition to the existing selection and filtering strategies already employed in the software.

The file importation feature will allow for any special set of parcels such as targeted study areas or requests from special interest groups to access data for reports. Report set-up will allow customized field selection and can include the following data: Parcel Number, Site Address, System Type, Date Installed, Maintenance Status, Watershed, Study Area, and River/Stream. With this feature we can easily respond to data requests from interested parties and generate reports for subsets of parcels not otherwise available with standard filtering and reporting features.

Carmody will add an analysis tool that will evaluate if maintenance is current for the OSS located on the parcel. The status (current/not current) will be easily accessed for reporting. Status will be evaluated according to the maintenance schedule assigned for each type of septic system or the individualized schedule assigned to a particular OSS.

Tidemark, the County's permitting software, will be modified for septic permit cases to include data entry options to identify whether the property is served by a community OSS (more than two residences served by the system), shared (two residents sharing an OSS), commercial and residential septic systems. Community OSS and commercial OSS require annual maintenance that may be more frequent than the standard schedule based solely on the type of septic system. When the Carmody database is updated with permitted activities the new data can be included to enhance our ability to monitor special case maintenance requirements.

1.4.2 Carmody Data Maintenance and Development

Duplicate Parcel Number Records

Circumstances such as two OSS on one parcel create a situation where duplicate records for the same parcel (number) exist in the O&M data. Carmody flags these duplications which will be researched and edited when necessary. The outcome will be that each record in Carmody reflects one septic system. When more than one septic system is located on a single parcel, the duplicated record will be modified so each OSS is uniquely identified. The system tracking number (the same as the parcel number) will include an additional and unique alpha character, one for each OSS on the property. Search for the property with the parcel number will show all OSS on that parcel.

Community Drainfields

Community drainfields require annual maintenance by an O&M Specialist regardless of the type of system. Research must be done to identify community systems, identify a system contact "manager", and then modify community drainfield records in Carmody to allow monitoring of maintenance for the system.

O&M Database Standard Operating Procedures Manual

This manual will be developed to document data development activities and decisions, annual O&M activity schedules, historical activities, daily data entry activities and evaluation, enhancements and reports. The guiding principal since the implementation of Operation & Maintenance activities in Mason County has been to have an attainable and sustainable Operation & Maintenance Program. Documentation and historical records will continue to support these principals.

GIS Delivery of Operation & Maintenance Information:

An O&M data layer will be developed for Mason County's GIS system to show all parcels with an onsite septic system, type of system, date installed, and status of maintenance with other characteristics also available. This data layer will interface with current GIS data layers available now and in the future such as wetland and flood plain data, slope data, watersheds, MRAs and Shellfish Protection areas. Staff will be trained to manipulate display options of various operation & maintenance parcel characteristics and to develop maps that can be used in public education and project demonstration. Quarterly updating and technical support will be contracted with the Mason County GIS Department.

1.5 Resources Necessary to Implement Data Components of the Plan

1.5.1 Enhancements to Hardware and Software

The County is anticipating changes and improvements to O&M computer software systems as part of the implementation of this plan. Funding from the plan implementation money coming to Mason County from the Department of Health will fund the upgrades to the Carmody database. Specifics are outlined in the grant request submitted in October 2007.

1.5.2 Data Personnel

No anticipated changes are expected for data personnel at this time. Onsite and clerical staff will continue to enter data into the Carmody O&M database. Document scanning (all parcel files) is being coordinated through the Mason County Permit Assistance Center. One clerical staff is currently assigned to this task for the County.

1.6. Timeline

Table 1: Prioritized activities to enhance the O&M database

Goals	Activities	Deadline
Carmody O&M Management Software Upgrades for Reporting and Selection	A contract software enhancement will be written with Carmody Data Systems. The enhancements will be evaluated and modified as required. It is realistic to expect the enhancement will be fully operation by the projected deadline.	3/31/2008
O&M Database Maintenance and Development	Development of an Operation & Maintenance Program Standard Operating Procedures Notebook which will include descriptions and rationale for all phases of data development and maintenance of the Carmody O&M database. Data maintenance projects will include developing and implementing procedures for formatting and monitoring community drainfields and duplicate parcel records	3/31/2008
Permitting and Case Management Software Enhancements	Modifying the Tidemark permitting software data fields for onsite septic permits to capture information to be downloaded into the Carmody software and improve management of updates.	3/31/2008

GIS Delivery of O&M Information	Implement staff GIS training and setup activities and develop GIS data layers to represent OSS locations, system types, age of systems and status of maintenance.	6/30/2009

1.7 Summary of Database Activities

Mason County has prioritized completing the Carmody O&M database with all permitted, known and estimated OSS systems in Mason County. The County will work to customize all data fields, report and notification capacities as needed for O&M requirements and effective monitoring.

Part 2: Identification of Sensitive Areas

2.1 Introduction

This section describes how Mason County Public Health identifies sensitive areas where OSS could pose an increased public-health risk. It also describes environmental and demographic characteristics of Mason County and how Mason County Public Health coordinates with other jurisdictions and agencies when making decisions about sensitive areas.

This part of the Plan satisfies the following elements of WAC 246-272A-0015(1):
b) Identify any areas where OSS could pose an increased public health risk.
i) Assure that the Plan was developed to coordinate with the Mason County Comprehensive Land Use Plan.
h) Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

2.2 Activities

2.2.1 Mason County Environment

Jurisdictional Boundaries[1]

Mason County is situated along the southwestern portion of Puget Sound, and encompasses roughly 961 square miles. It borders on Jefferson County to the north, Grays Harbor County to the west and southwest, Thurston County to the southeast, Pierce County to the east, and Kitsap County to the northeast. Mason County remains a predominantly rural county despite the urban spillover from both Thurston and Kitsap Counties. The City of Shelton, the only incorporated area in Mason County, includes approximately 4.77 square miles, or less than one percent of the County's total land area. Two Native American Tribes, the Skokomish and the Squaxin Island Tribes, have reservations within the boundaries of Mason County.

Three geologic provinces combine to form Mason County. They include the Puget Sound Lowland, the Olympic Mountains, and the Black Hills. Additionally, seven watersheds exist within Mason County. They include Case Inlet, Chehalis, Lower Hood Canal, Oakland Bay, Skokomish, Totten-Little Skookum, and West Hood Canal. Mason County also includes over 90 square miles of water, over 200 freshwater lakes, two major rivers, and a number of smaller tributaries and creeks. Therefore, water issues have factored continually into the activities and decisions of all County departments throughout Mason County's history.

A map of Mason County's jurisdictional boundaries and basic features is located in **Appendix B**. Four state-determined Water Resources Inventory Areas (WRIAs) come together in Mason County, including the Skokomish-Dosewallips (WRIA 16), Kennedy-Goldsborough (WRIA 14), Lower Chehalis (WRIA 22) and Kitsap (WRIA 15). **Appendix B**

[1] Information for this section from *Mason County Comprehensive Plan*, 2005 Edition, p. I-4.2

contains a map depicting the boundaries of these watersheds. The State Department of Ecology is responsible for the development and management of these administrative and planning boundaries and their designation as 303(d) threatened and endangered water bodies. This designation, as well as other land and water quality assessments have influenced the targeted areas of the County's OSS O&M activities.

Population Density, Demographics, and Socioeconomic Trends[2]

According to 2005 Census data, Mason County is home to 51,900 people, with 43,165 of those citizens living in unincorporated parts of the county and 8,735 of those citizens located in the City of Shelton. With 961 square miles of land in Mason County, the population density was 54 people per square mile in 2005.[3] Between 1990 and 2005, the county reported an increased population of 35%, as compared to a 29% increase in Washington state at the time. The County has experienced rapid growth since the 1960s. Between 1960 and 1990, the County's total population grew by roughly 136 percent. From 1990 to 1994, the County's population grew by 15.5 percent at an annual average rate of 3.7 percent. Mason County population forecasts indicate an additional 6,700 people in the next ten years, an increase of 12.9 percent. Historically, the bulk of the Mason County's population growth has occurred in the unincorporated areas of the County. The City of Shelton and the Community of Belfair, however, are expected to attract a larger share of Mason County's population growth in the future. Maps depicting population density for each WRIA in Mason County, as well as urban growth and future land use patterns are in **Appendix B**, while a graph showing predicted population increases until 2025 are in **Appendix C**. These maps and data provide a perspective for future needs of OSS O&M monitoring and activities.

Natural resource industries currently support Mason County's economy and are expected to be as important in the future. The County is highly specialized in the production of forestry and aquaculture commodities. This specialization focuses on both raw materials and value added products in these industries that rely on good water quality for economic viability. Heavy construction and government service also anchor the County's economy.

Government is the County's largest employer. Over 22 percent of Mason County's total employment in 1992 was provided by the government sector. The service industry was the largest private employer, followed closely by the retail industry.[4] Median family income for the County is $44,246.[5]

About half, 51% of all Mason County residents age 25+ had attained more than a high school education in 2000, with 16% holding a Bachelor's Degree or higher. Tailoring OSS educational materials, discussions and presentations to those with a variety of educational backgrounds can help in providing accessible O&M informational resources to residents. The majority, 94% of Mason County residents, spoke English at home in 2000. Of the 6% of residents that spoke a language other than English at home, half spoke English in

[2] Information for this section from *Mason County Comprehensive Plan*, 2005 Edition, p. I-4.2; and Mason County Data Series
[3] *Demographics* Data Series Sheet, Mason County, May 2006.
[4] Above information from Mason County Comprehensive Plan, April 1996 – update with 2005 version.
[5] *Income and Poverty* Mason County Data Series Sheet.

addition to their native tongue. Although not a large portion of the population, having some of the main OSS O&M materials in Spanish could also help.

Land Use[6]

Mason County's rich natural resources and open spaces dominate the County's landscape. Combined national, state, and private forests currently account for about 82 percent of the County's land. Mineral deposits underlie Mason County's top soils. At present these deposits support 21 surface mining operations. Agricultural and aquacultural areas contribute both to the County's natural beauty and its economy. Mason County also includes substantial open space. Open space within the County hosts wildlife habitat, undeveloped natural areas, and many developed park and recreation sites. These provide significant support in the health of Mason County's watersheds. These open space areas include 101 sites managed by federal, state, county, municipal, and private interests.

Drainage[7]

Surface flows in the County result from precipitation. Precipitation occurs year round in Mason County. It tends to be particularly heavy during the months of November through April, when heavy rainfall at the lower elevations combines with seasonal snowmelt in the mountains.

Mason County's drainage system for surface runoff is characterized by thousands of small tributaries which form the several hundred streams and rivers that eventually make their way into Hood Canal, Oakland Bay, Totten Inlet, Skookum Inlet and Case Inlet (see **Appendix B** for a map of Mason County Streams). Some of the larger of these rivers include the Skokomish, Union, and Tahuya Rivers.

Mason County's natural drainage system contains hundreds of lakes and ponds that further help to moderate the effects of surface water storm flows. The largest of these include: Lake Cushman, Mason Lake, Cranberry Lake, Lake Limerick, and Lake Nahwatzel.

The County has over 38,000 acres of documented wetlands, 20 to 25 of which have been listed as *High Quality Native Wetlands* by the Department of Natural Resources.

Mason County's Surface Water Management Plan has provided guidance to this plan on supporting the health of water resources with such an extensive network of drainage systems countywide.

[6] Information for this section from *Mason County Comprehensive Plan*, 2005 Edition, p. I-4.2
[7] Information in this section from *Mason County Comprehensive Plan*, 2005 Edition, p IV-62.

Water Quantity and Water Quality

With 65 inches of annual rainfall and over 200 freshwater lakes, Mason County is one of the most water-abundant counties in the state of Washington. The Puget Sound and Hood Canal account for almost 90 square miles of water, or 10% of the county's total area. Out of 2,359 miles of Puget Sound shoreline, 218 miles (9%) are in Mason County, the fourth largest length of the 12 counties sharing Puget Sound.

In Mason County, there are 227 Group A water systems, servicing about 33,500 people. In the past two years, there have been 12 'boil water orders' placed on Group A Water Systems. In 2007, there were 150 cases of coliform bacteria detected in these water systems.[8] There are 501 Group B water systems in Mason County, servicing 5,500 individuals. In 2007, 10% of the monitored systems tested positive for coliform bacteria.[9] Approximately 20% of Mason County residents receive their drinking water from single family wells. Out of the 479 wells that were tested for water quality by the County lab in 2007, 25% of single family wells tested positive for coliform bacteria.[10]

Sensitive areas in Mason County, as outlined by the Washington Department of Ecology[11] include: (www.ecy.wa.gov)

- Twenty-seven waterbodies failing fecal coliform bacteria (*fcb*) standards
- Four waterbodies failing water temperature standards
- One waterbody failing acidity level (pH) standards
- Six waterbodies failing dissolved oxygen level standards
- Marine waters with clean-up activities include:
    1) Oakland Bay
    2) Lynch Cove
    3) Hammersley Inlet (for *fcb*)
    4) Shelton Harbor (for *fcb*)
    5) Major investigation and clean-up on Hood Canal for low dissolved oxygen
- Large rivers with clean-up activities:
    1) Union River (for *fcb*)
    2) Skokomish River (for *fcb*)
- Small creeks with clean-up activities:
    1) Campbell
    2) Goldsborough
    3) Kennedy
    4) Malaney
    5) Shelton
    6) Skookum
    7) Uncle John
    8) Ten Acre (for *fcb*)
    9) Skookum

[8] 2007, Downloaded From DOH online database (SENTRY)
[9] 2007, Downloaded From DOH online database (SENTRY)
[10] 2007, Downloaded From MC Water Lab Database
[11] As cited in Mason Co *Water: A Precious Resource* pamphlet

10) Cranberry
11) Johns
12) Mill Creeks (for temperature)
13) Big and Little Mission Creeks

These sensitive areas will be taken into consideration by MCEH in tailoring OSS O&M to these area's needs.

2.2.2 Current & Past Water Quality Activities

Current

With such an extensive water landscape countywide, Mason County Public Health has taken the initiative in addressing water quality issues through a variety of activities historically. The following lists the current MCPH water quality activities:

- **Hood Canal Dissolved Oxygen Program (HCDOP) Sampling Assistance:** Sampling 12 locations for dissolved oxygen and nutrients for the Hood Canal Dissolved Oxygen Program. Mason County Public Health is now halfway through this 3-year project.
- **Annas Bay Restoration Grant:** Researching the background for Annas Bay pollution problems in the field and in the office. Mason County Public Health has conducted fifteen sampling events and has taken over 180 samples along the eastern shoreline of Annas Bay and lower Skokomish River. This grant runs through June 30, 2008 and the final report will be available by July 15, 2008.
- **Annas Bay Shellfish Protection District/Shellfish Downgrade:** Mason County Public Health has spoken with several residents on site visits and has concluded dye testing of possible failing septic systems until the start of the wet season in late September. Sampling began on Annas Bay shorelines during the month of August. To date, three failing septic systems were identified and replaced. The work continues and DOH marine sampling results indicate water quality is getting better at the stations of concern.
- **Oakland Bay:** Mason County Public Health works with Squaxin tribe, CD and other state agencies on projects to identify fecal coliform pollution in the area using microbial source tracking. A shellfish protection district was formed in Oakland Bay and interested parties came together to develop an Action Plan and Matrix assigning tasks and timelines for the work being done to improve the water quality and re-open the shellfish growing area to harvest.
- **Marine Beaches Program**: Lab analysis of routine samples prompted beach closures at Twanoh State Park to protect the public's health. Mason County Public Health staff worked with Park Rangers to educate campers to clean up after their pets and water quality was improved through this campaign.
- **Lakes Program:** Voluntary, educational program that grows each year. There were two lake closures this year due to high bacteria levels at the swimming beach. Both problems were quickly resolved with no re-occurrence, so sanitary surveys were not necessary. Mason County Public Health attended a lake homeowners association to answer water quality questions in September 2007. Staff are available to speak to groups on request.

- **Dry & Wet Weather Ambient Monitoring:** Intensive sampling during stream baseflow conditions take place in July, August and early September for dry weather, and November through April for wet weather. Results from this monitoring are used to develop work plans and identify areas of concern requiring additional follow-up.
- **Hood Canal Pollution Identification and Correction with Department of Ecology**
- **Mission Creek Pollution Identification and Correction Project:** Occurring in Big and Little Mission Creeks. The Hood Canal Salmon Enhancement Group has contracted with Department of Ecology to conduct this study with Mason County Public Health staff assistance. One sampling event was conducted during the month of August.
- **Skokomish Valley Nutrient Sampling Piezometers:** Assisted MCD in installing Piezometers in the Skokomish Valley. This project shed light on the amount of nutrients leaving agricultural sites under different management regiments.
- **Ongoing General Surface Water Quality Program Work:** Developing and refining Standard Operating Procedures for the Water Quality Program. Participated in WRIA 16 Implementation of Recommendations meetings and WRIA 14 process until it ended. Participated in summer events that sought to educate the public regarding water quality issues on the shoreline at the Theler Center and Alderbrook. Pursued and resolved complaints that affect the shoreline.
- **Trainings and meetings:** Attended Hoodsport to Skokomish Water Management, GIS Technical Committee/User Group and Emergency Preparedness.

<u>Past</u>

Mason County Public Health's water quality activities and objectives included:

- Totten-Little Skookum Inlet Watershed Action Plan (Oct 1989): Identify the action steps required to preserve and enhance the water quality throughout the Totten and Little Skookum watershed.
- Oakland Bay Watershed Management Plan (Dec 1990):
    - Recommended inclusion of water quality studies in the curricula of Student Learning Objectives by the Public School Districts
    - Recommended development a subarea plan for the watershed.
    - Recommended City's Infiltration and Inflow Control Program should be fully and timely implemented.
    - Recommended watershed management implementation committee to oversee and review implementation progress, monitor Timber, Fish and Wildlife activities within watershed, and provide assistance as needed for plan implementation.
- Lower Hood Canal Watershed Action Plan (Oct 1994):
    - Establish a Clean Water or Shellfish Protection District in Mason County
    - Implement water quality monitoring and land use planning in the watershed
    - Establish a complaint tracking system in Mason County for activities that affect water quality
    - OSS-specific:
        - Enforce existing environmental health regulations for residential and business OSS systems.

        - Maintain a database on each on-site sewage system in the watershed and encourage each property owner to maintain their system in operating order.
        - Examine community sewage waste system solutions for small and large areas that would not permit direct discharges into Hood Canal.
    - Objectives also targeted public education, groundwater protection, water-based recreational activities, agricultural practices, forestry practices, erosion and stormwater, landfill, and illegal dumping.

2.2.3 Designating Sensitive Areas

Areas Where OSS May Pose an Increased Threat to Public Health

Mason County Public Health has identified several areas where OSS may pose an increased threat to public health; however, it is important to note that there are currently no data that indicates the relative contribution of OSS to degraded water quality in these sensitive areas. These areas are as follows:

- **Critical aquifer-recharge areas**. The County has delineated critical aquifer recharge areas and takes these areas into consideration when permitting OSS. However, the County does not have a formal policy that indicates how being in an aquifer recharge area should affect an OSS permit. Mason County Public Health will be working with Mason County Department of Community Development on new policy as it is developed.
- **Lower Hood Canal Watershed.** While implementing the Washington State Department of Ecology Centennial Clean Water Grant on January 1, 2003, Mason County targeted grant activities to populations in the Lower Hood Canal watershed including shoreline property and inland property with drainage flowing into Hood Canal (approximately 5,035 systems). Many of these properties are seasonal use and are not occupied year-round. Owners are frequently users of public sewer systems in their primary residences and were unaware of the O&M requirements of their OSS for seasonal-use properties. It is estimated that over 80% of these systems in the watershed are older gravity systems, often over 20 years old. For many of these systems, there is no documentation. Mason County Public Health focused an education and outreach program on the residents of this area, sending each property owner copies of their onsite system asbuilt if available, a list of pumpers and O&M Specialists, a Homeowners Manual and a septic system do's and don'ts brochure. Initial response to the mailing was over 50% return on our request for current service documentation from the homeowner.
- **Regulated wetlands** as designated by Mason County Planning Department in the Resource Ordinance.

- **Shellfish protection districts**: [12]
    - Totten/Little Skookum 1992
    - Lower Hood Canal 1993
    - Lilliwaup Bay 1998

[12] Washington DOH website: http://www.doh.wa.gov/publicat/2006_news/06-073.htm

    - Annas Bay 2005
    - Oakland Bay 2007
    - McLane Cove in Pickering Passage (future)
    - North Bay (possible)
- **Frequently flooded areas,** particularly the **Skokomish Valley.** Others determined as outlined in Mason County's Flood Damage Prevention Ordinance, Section 5.1-3
- **Shorelines of Statewide Significance**:
    - **Hood Canal**
    - **Lake Cushman**
    - **Skokomish River** (downstream from the confluence of its North and South Forks).
- **Tahuya Peninsula**
- **WRIA 14, 15 & 16 Category 5 – 303(d) Waterbodies**.

Mason County Public Health is committed to adding to this list of sensitive areas if new data show that OSS are posing increased public-health risks in an area of the county. Mason County Public Health also tracks all water-quality monitoring data collected in the County in order to continually assess current and future Mason County Public Health activity needs.

Method for Identifying Sensitive Areas in Mason County

Mason County defines the following areas as sensitive. Mason County Public Health supports the designation of these areas as sensitive. With further assessment, some of these areas may be designated as Marine Recovery Areas.

Wetlands. The Mason County Community Development (MCCD) Department has outlined wetlands that require immediate protection from incompatible land uses, as well as those for which homeowners are strongly encouraged to voluntarily cooperate in wetland protection using MCCD guidelines and materials. As described in Mason County's Resource Ordinance Section 7.01.070 on Wetlands, those in need of immediate attention include areas classified as regulated wetlands, ponds less than twenty acres, and wetlands created as mitigation for approved land use activities. These areas are addressed in the OSS permitting process.

Additionally, those isolated wetlands, particularly which are under 1,000 square feet but not associated with a riparian corridor, part of a wetland mosaic, or essential to a priority species as identified by the Washington Department of Fish and Wildlife are also flagged by the Community Development Department and will also be considered in additional O&M monitoring and/or educational activities.

Critical Aquifer Recharge Areas. Mason County Public Health will use the critical aquifer recharge areas outlined by the County's Community Development Department. MCCD's method for classifying and mapping Mason County aquifers was developed by a qualified geologist in consultation with the Washington Department of Natural Resources and considered data from State sources on natural resources, geology, water resources, soil

conservation maps, topographic maps and water well records. Geologist Gordon Adams interpreted these data sources.

Shellfish Protection Districts. MCPH will use the classifications for shellfish protection districts as outlined by Washington State Department of Health. These include: Annas Bay, North Bay, Oakland Bay, and McLane Cove in Pickering Passage.[13] Lynch Cove of Lower Hood Canal was partially reopened in 2004.

Frequently flooded areas. As outlined in Mason County's Flood Damage Prevention Ordinance, Section 5.1-3: "On-site waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding."

Shoreline Management Plan.[14] The Shoreline Management Act of 1971 has designated the following shoreline areas of Mason County as Shorelines of Statewide Significance:

- Hood Canal
- Lake Cushman
- Skokomish River (downstream from the confluence of its North and South Forks).

Hood Canal is also of primary interest as a sensitive area due to nitrogen concerns, shellfish closures and statewide activities in addressing such concerns.

WRIA 14, 15 & 16 Category 5 – 303(d) Waterbodies. Ecology submitted a list of waterbody segments as required under Clean Water Act Section 303(d) for which at least one characteristic or designated use has been impaired. Impairment is evidenced by failure to attain the applicable water quality standard for one or more pollutants, not expecting to meet applicable water quality standards by the next assessment cycle, and which do not already have a Total Maximum Daily Limit (i.e, Water Quality Improvement Project) or other adequate pollution control plan in place to address the impairment.[15]

Rivers Report. Mason County Public Health's Water Quality staff has produced a list of waterbodies for which to run special reports on O&M monitoring. The list of waterbodies, includes Skokomish, Union, Campbell, Uncle John, Mission and Little Mission. This has been a test project for identifying sensitive areas and considering specific O&M requirements.

Areas excluded from consideration. The following areas and associated reasons will not be considered for Mason County's inventory of sensitive areas:

- Mason County does not have any sole source aquifers designated by the EPA
- Wellhead protection areas fall under consideration of Critical Aquifer Recharge Areas as outlined in Mason County's Resource Ordinance.[16]
- There are no up-gradient areas directly influencing water recreation facilities designated for swimming in natural waters with artificial barriers.

[13] Washington DOH website: http://www.doh.wa.gov/publicat/2006_news/06-073.htm
[14] Mason County Comprehensive Plan, 2005 Edition, p. IX.2.
[15] Overview of Category 5 – 303(d) list, as discussed on Ecology's http://www.ecy.wa.gov/programs/wq/303d/2002/2004_documents/cat5-overview.pdf
[16] Mason County Resource Ordinance, Section 17.01.080 H, p. 40.

- The Department of Ecology has designated no special protection areas for groundwater in Mason County.
- Mason County does not have any wetland areas under production for crops for human consumption.

Coordination with other jurisdictions, agencies, and stakeholders in setting sensitive areas

Mason County Public Health works with the WSU Cooperative Extension, Mason Conservation District, homeowners associations, Squaxin Island Tribal Nation, Skokomish Tribal Nation, Hood Canal Salmon Enhancement Project, Hood Canal Coordinating Council (HCCC), Hood Canal Dissolved Oxygen Program (HCDOP), Puget Sound Partnership, and Lower Hood Canal Watershed Coalition.

Mason County Public Health is also a member of WRIA 14 and 16, HCDOP's Nitrogen Working Group, Annas Bay Shellfish Protection District, Oakland Bay Resource Recovery Area, and HCCC. Changes to the designation criteria for sensitive areas, or new designations, may require public hearings and a SEPA review. As part of these processes, Mason County (Health through Onsite rules or DCD through growth management or shoreline hearings board) ensures that known agencies of jurisdiction or expertise receive notice of public hearings. MCPH values community outreach and public input.

2.2.4 Coordination with Planning Entities within Mason County

Mason County Public Health staff coordinates with the following list of planning agencies in order to address OSS and water quality oversight: Including but not limited to Mason County Community Development, Mason County Public Works, Mason County Department of Utilities and Waste Management, Shelton City Planning Department, Washington State Department of Health, Washington State University Cooperative Extension Office, Mason County Conservation District, and the Skokomish Tribal Nation.

Coordination Process for Comprehensive Land Use Plan

Mason County Public Health staff to date, have not been included with the county and city planning departments in the development of the Comprehensive Land Use Plan. However, the 2005 Revision of the Comprehensive Plan indicates coordination regarding on-site sewage for the following sub-areas: Harstine Island, North Mason, and Southeast Mason.[17]

Coordination Improvements

Currently there are no joint department meetings between Mason County Public Health and other County offices. The pre-application process incorporates primary staff from associated departments to approve permits and to consider Environmental Reviews, but this is the main coordination activity among departments at this time. Further dialog between sanitarians and planning staff, as well as cross-training between departments in

[17] Mason County Comprehensive Plan, 2005 Revision, p. IV-64.

language, activities and needs would help coordination activities in OSS O&M and throughout joint activities.

With Mason County Public Health's participation, the Comprehensive Land Use Plan may more adequately be able to address concerns associated with public health and the environment, including on-site sewage. Additionally, coordination and consultation with various other Mason County planning codes and regulations, such as Title 15 Mason Development Code; Title 16 Mason County Plats & Subdivisions Code; Mason County Development Regulations, Ordinance No. 82-96.

Assuring Similar Goals & Standards for OSS regulations and land use plans

With greater coordination between Mason County Public Health and the various planning agencies in the form of scheduled meetings and formal and informal memos, emails and communications; as well as Environmental Health participation in development of the Comprehensive Land Use Plan will better assure that local OSS regulations and land use plans use the same goals and standards as set forth by the OSS Local Management Plan herewithin. The process has begun with the inclusion by invitation of City and County planning staff in Mason County Public Health workgroups and meetings.

2.3 State Environmental Policy Act Review

The Washington State Environmental Policy Act (SEPA) requires state and local agencies to consider likely environmental consequences from proposed policy and implementation.

2.4 Resources

2.4.1 Personnel

Mason County Public Health is not planning any personnel changes at this time but will continue to assess the capacity and the cost necessary to fully implement the plan.

2.4.2 Consultants

Mason County Public Health is not planning to hire any additional consultants at this time.

2.5 Timeline

Table 2: The table outlines prioritized activities to enhance the O&M database:

Goals	Activities	Deadline
Inventory and designate targeted sensitive areas in Mason County	Consult guiding documents, departments and agencies to determine sensitive areas. May include: Ecology (WRIA Category 5 waterbodies), Planning and Community Development Departments, County Resource Ordinance Manual, Flood Prevention Manual, etc.	First Assessment completed August 2007. On-going.
Determine sensitive area needs that influence OSS O&M	Consult above resources and research authorities in determining area needs.	First assessment completed August 2007. On-going.

2.6 Summary and Prioritization of Activities

The priority activities Mason County has planned:

- Tracking water-quality monitoring data collected in the county and as addressed by other agencies to determine sensitive area identification and needs; and
- Improving coordination with the Mason County Planning Department

Part 3: Operation, Monitoring, and Maintenance in Sensitive Areas

3.1. Introduction

There are approximately 25,300 parcels of land with residential accommodations (homes, cabins, etc.) in Mason County[18]. There are four community-municipal sewage treatment systems in Mason County, servicing about 20% of our community.[19]

3.2 Activities

3.2.1 Current Operations, Monitoring, and Maintenance (O&M) Requirements Common to All Areas in Mason County

O&M Requirements in Place Prior to the Adoption of WAC 246-272A

In July 2005, the State Board of Health adopted Chapter 246-272A WAC, which establishes new O&M requirements for all OSS. Prior to the adoption of Chapter 246-272A WAC, Mason County Public Health had a number of O&M program requirements in place that applied to all OSS. These requirements came from the State Department of Health's guidance documents, or from proprietary device manufacturers. The following describes those requirements, which remained unchanged until WAC 246-272A went into effect.

As Mason County Public Health Onsite Sewage Regulations stated:

- 7.02: O&M of OSS "shall be required as a condition for approval for new systems, and as a requirement for use of existing systems located within 200 feet of designated areas of environmental sensitivity in accordance with the schedule in *Mason County Standards for Design, Construction, Operation, and Maintenance of Sewage Systems*
- 7.03.01: O&M of OSS systems with design flows of less than 3,500 gallons per day shall be the responsibility of the system owner. The homeowner, department or certified operation and maintenance specialist shall monitor the performance of said systems and the department shall require routine maintenance of said systems as delineated in Section 7.03.
- 7.03.02 "Upon failure by the owner of any system to comply with the requirements and standards of the certified inspector or with the department, within thirty (30) days of notice, the department shall have the right to record the deed of the property notification of noncompliance.
- 7.04.03: Homeowners or those contracted by the homeowner must immediately report any identified OSS failure to Mason County Public Health.
- 7.04.04: System owners are required to take necessary corrective action to correct deficiencies in system design and operation, when such deficiencies are documented in O&M reports.

A satisfactory pumper or O&M specialist report is required for any building or remodeling activity on a parcel with an existing system.

[18] 2001 Mason County Assessment Office as cited in "Mason County: A Water County" pamphlet.
[19] 1996, PSWQA as cited in "Mason County: A Water County" pamphlet.

Satisfactory pumper reports are also required for Loan Certification Health Letters requested for home sales. Mason County Public Health does not require this certification, however many lending institutions may request Health Letters from the County. There are plans to institute a time of sale program in the future.

Maintenance reports are required annually for food establishment permits issued by Mason County's Food Program. The Food Program uses information from the Carmody database to determine if the establishment is current with O&M and eligible to receive the annual permit.

Beginning in January 2004, all pumpers and O&M specialists were required to submit a copy of a service report to Mason County Public Health. Three-part report forms are printed and supplied to all certified pumpers and O&M specialists. [20]

New Requirements for O&M Pursuant to WAC 246-272A

The new Chapter 246-272A-0270 WAC, adopted by the Washington State Board of Health in July 2005, specifies that in all cases, homeowners are responsible for maintaining their OSS and obtaining proper inspections. Furthermore, the WAC requires homeowners to obtain a complete evaluation of their OSS components and/or property to determine functionality, maintenance needs, and compliance with regulations and any permits according to the following schedule:

- At least once every three years for all systems consisting solely of a septic tank and gravity subsurface absorption systems (SSAS)
- Annually for pressure distributed, siphon, mound or sandfilter with a professional inspection at least every three years. Aerobic units and disinfectant units will continue their biannual maintenance requirements by proprietary device licensee or a certified maintenance specialist.

These provisions do not apply if the manufacturer of the system requires more frequent inspections and/or requires that a professional conduct the inspection. If the manufacturer provides specific inspection instructions, the OSS owner should follow these instructions.

3.2.2 Sensitive Area O&M Requirements

Sensitive Area O&M Requirements in Place Prior to WAC 246-272A

Prior to the adoption of WAC 246-272A, Mason County Public Health's O&M requirements for sensitive areas were the same as its requirements for the rest of the county. However, Mason County Public Health has prioritized more sensitive areas in their implementation of O&M activities. For example, in transitioning all their O&M records to the Carmody O&M database, approximately 5,000 parcels in Lower Hood Canal Watershed, a shellfish protection district, were entered first. Property owners in this target population were sent educational materials as well as septic records that were available.
In 2006, targeted Oakland Bay residents received educational materials and septic records.

[20] Centennial Clean Water Fund Grant #G02-00360 Final Grant Report.

New Requirements for O&M in Sensitive Areas

Chapter 246-272A WAC does not require Mason County Public Health to institute more stringent requirements for OSS operations and maintenance in sensitive areas, however, Mason County Public Health has in the past and will continue to consider additional enhanced O&M activities for sensitive areas.

Several new ordinances from the Mason County Department of Community Development (Planning) will provide an opportunity to target permitting and O&M activities by Public Health to protect sensitive areas. Included are:

- Wetlands: The revised version of the Mason County Resource Ordinance, Section 17.01.070[21] states that wetland buffers[22] are required for all regulated wetlands. Such buffers are taken into consideration in the OSS permitting process.
- Critical Aquifer Recharge Areas: The revised version of the Mason County Resource Ordinance, Section 17.01.080G states that O&M of OSS systems in critical aquifer recharge areas is required, and participation in this program is mandatory for existing and new septic systems in these areas.

  Additionally, the Resource Ordinance states that any new OSS "shall not have localized effects that might have a significant adverse impact on wells or surface water bodies."

  In order to get an approved OSS permit, the applicant must undergo a review from a Site Evaluation Report determining that there are no adverse impacts to wells, springs, surface water bodies, or off-site ground water quality.
- Flood Zones: As outlined in Mason County's Flood Damage Prevention Ordinance, Section 5.1-3: "On-site waste disposal systems shall be located to avoid impairment to [flood plains] or contamination from them during flooding."
- Clean Water Districts: Stronger OSS system controls implemented in such areas.[23]
- Critical Shoreline Areas: Mason County's Shoreline Master Plan

Increased dialog among Planning in Community Development, Public Health - On-Site Sewage, Public Works and GIS would enhance communication and coordination among the departments.

Mason County Public Health is considering taking the following additional actions in addressing these sensitive areas.

- Requiring more frequent O&M schedules for OSS owners in Marine Recovery Areas.
- Sending out more frequent notifications for O&M with follow-up for O&M that has not occurred on time.
- Using existing data fields in Carmody indicating if the site has a wetland, floodland or shoreland could be implemented electronically if data with these parcel characteristics were available in a data file.

[21] Mason County Resource Ordinance, Revised 27 December 2006, Section 17.01.070 E(2)(a), p. 24-25.
[22] Buffer widths are established by considering category of wetland, habitat value from the wetland rating system and intensity of proposed activity (in this case, type of OSS system).
[23] Mason County Comprehensive Plan, Version 2005, p. IV-62

- The Shoreline Master Program could provide additional designation for sensitive areas.

3.2.3 Enforcement Activities

Mason County Public Health lacks capacity to conduct extensive enforcement. Currently, enforcement occurs when a septic system fails and the County must use enforcement measures to ensure that the property owner repairs or replaces it.

Enforcement often occurs when a homeowner applies for a building permit. At that time, the County checks the OSS and can withhold the permit until repairs or O&M occur.

Enforcement occurs, when necessary, during follow-up with at risk OSS identified with service reports entered into the Carmody O&M database.

3.3 Resources

Currently, Mason County Public Health does not plan to differentiate O&M requirements between different types of sensitive areas. Areas will be prioritized as part of the program's annual work plan development.

3.4 Timeline

Table 3: The table outlines prioritized activities to guide operation, monitoring, and maintenance in sensitive areas:

Goals	Activities	Deadline
Enter records in O&M database according to sensitive area such that unique O&M maintenance schedule and activities are assigned	Work with Carmody to create new fields in database to categorize records according to sensitive area.	Completed
	Develop specific O&M protocol for each type of sensitive area	Ongoing

3.5 Summary and Prioritization of Activities

In conjunction with assessing current O&M program developments for sensitive areas, incorporating new associated regulations from County Utilities and Community Development (Planning) departments, and building further O&M requirements. Mason County Public Health sees their O&M program as significantly expanding to address the needs of sensitive areas and working closely with the community to bring them along in the process.

Part 4: Marine Recovery Strategy (MRA))

4.1 Introduction

4.1.1 Definition of MRAs

A Marine Recovery Area, as defined under RCW 70.118A.020, is “an area of definite boundaries where the local health officer, or the department in consultation with the health officer, determines that additional requirements for existing on-site sewage disposal systems may be necessary to reduce potential failing systems or minimize negative impacts of on-site sewage disposal systems.”

4.1.2 Legal authority for MRAs

Beginning July 2007, the State Board of Health added a new requirement to the revised On-Site Sewage Systems WAC 246-272A regulations requiring local health officers to plan for the development and management of all OSS within their jurisdiction. This planning requirement gives local health jurisdictions the opportunity to clarify and strengthen OSS management practices in sensitive areas that were defined by the Areas of Special Concern under the previous regulation. More detailed planning requirements apply to the twelve counties bordering Puget Sound. The new regulations require Puget Sound local health officers to:

- Develop or enhance an OSS database
- Identify sensitive areas within the jurisdiction
- Designate Marine Recovery Areas
- Identify Operation and Maintenance (O&M) requirements
- Provide education and reminders
- Enforce OSS requirements
- Describe capacity to fund OSS plan

2006 legislation (3SHB 1458) was aimed at reducing fecal coliform bacteria pollution and the degradation and loss of marine life in Hood Canal and other marine waters in Puget Sound caused by low-dissolved oxygen conditions. DOH directed the agencies to reduce the input of human-influenced nutrients, especially nitrogen, into marine waters.

Marine Recovery Areas (MRAs) must be designated when the health officer determines that existing OSS are a significant factor contributing to concerns associated with the degradation of shellfish growing areas, marine waters listed by the Department of Ecology for low-dissolved oxygen levels or fecal coliform bacteria, or marine waters where nitrogen has been identified as a contaminant of concern.

To accomplish water quality improvement, Mason County Public Health has developed an on-site strategy for marine recovery areas that specifies how Mason County will do the following by July 1, 2012, and thereafter:

- Find existing failing systems and ensure that system owners make necessary repairs, and
- Find unknown systems and ensure that they are inspected and functioning properly, and repaired if necessary.

When data from the work being done by the University of Washington and USGS indicates the best practices for management of such areas, the strategy will be updated and implemented accordingly in Mason County's Plan.

4.2 Activities

There were no MRAs prior to the writing of the plan, however O&M activities have been going on county wide as outlined in Part 3.

4.3 Marine Recovery Area On-Site Strategy

4.3.1 Identification of MRA

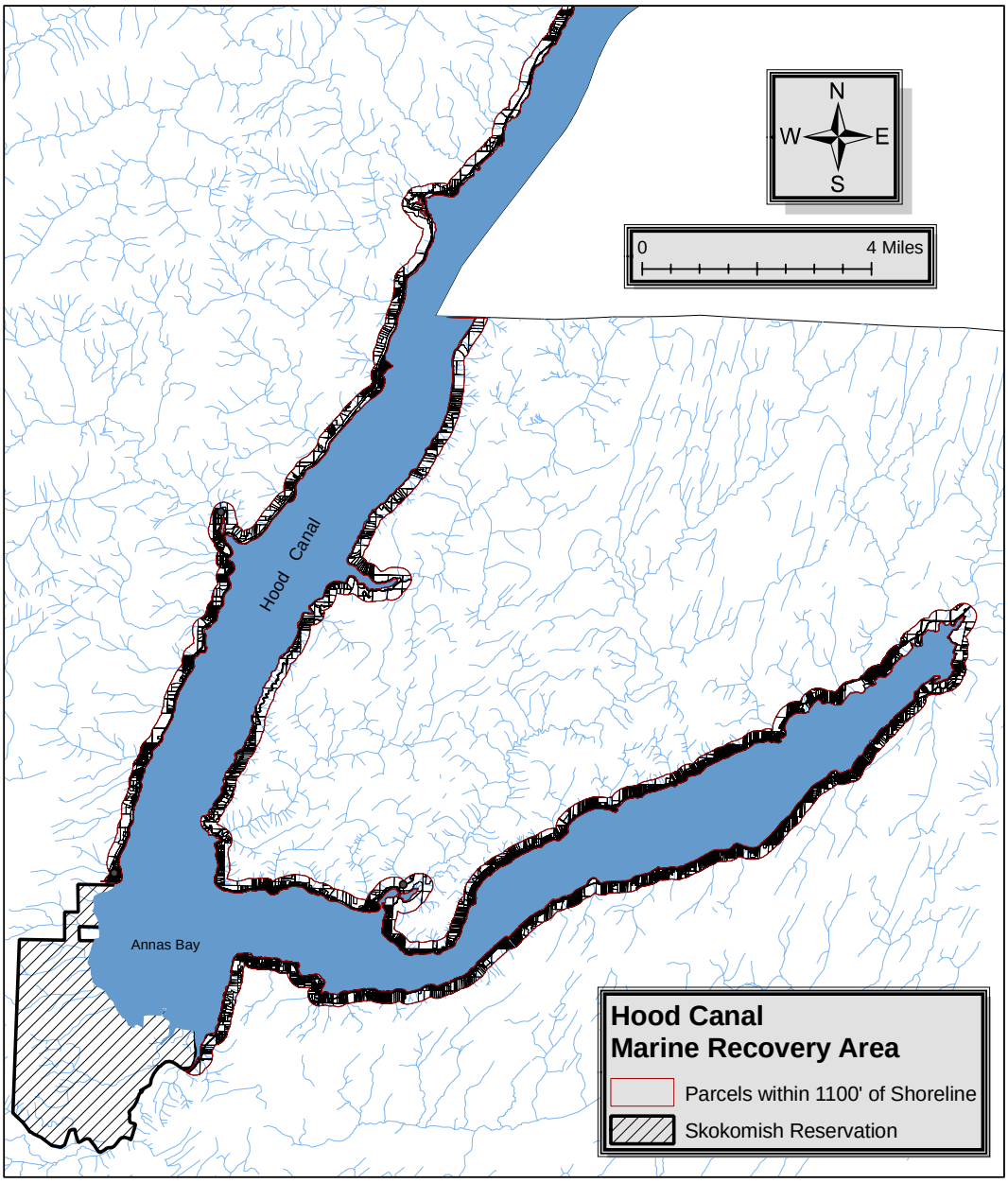
Mason County utilized the best available scientific and technical data in an analysis of potential geographic boundaries and gathered and presented data on both water quality and the status of on-site systems to the health officer, the Mason County BOH, and citizen groups for MRA designation.

The first MRA is Mason County's portion of Hood Canal, specifically Aquatic Rehabilitation Zone One (ARZ-1), defined by the Legislature as an area within Mason County including:

> "All watersheds that drain into Hood Canal south of the line projected from Tala Point in Jefferson County to Foulweather Bluff in Kitsap County".

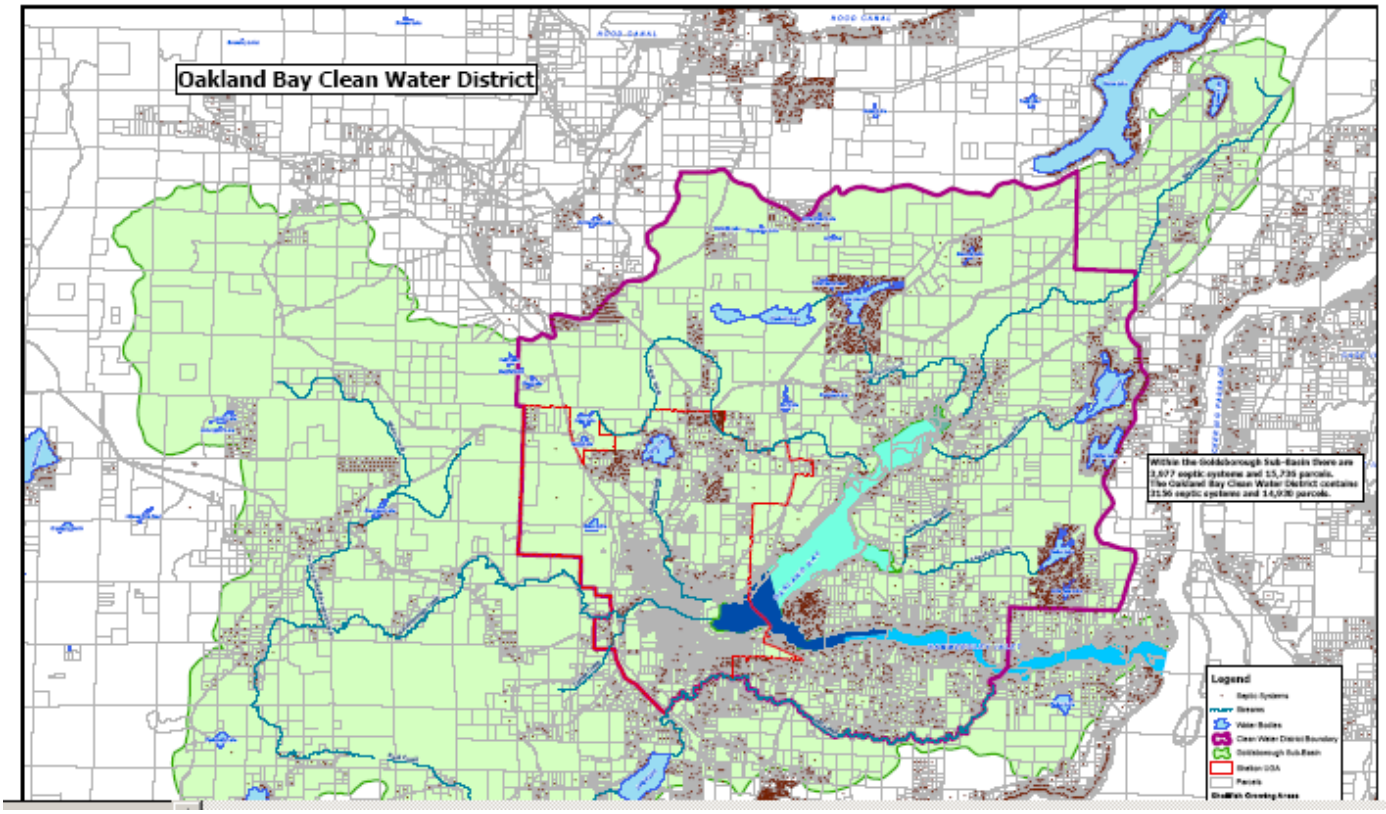
Mason County Public Health made a designation of properties within 1,100 feet of the marine shoreline in Hood Canal for the Hood Canal MRA as illustrated on the following map. This area is currently the focus of intensive water quality and onsite sewage program work funded by Legislative Proviso monies. The Proviso funding ends on December 31, 2008. Alternate sources of funding will be researched and presented to the Mason County Board of County Commissioners.

Mason County
Hood Canal
Marine Recovery Area



Map created 12/07 by A. Georgeson

The second MRA defined in Mason County is Oakland Bay (as defined in the Oakland Bay Shellfish Closure Response Plan and illustrated by the following map).



The Oakland Bay Closure Response Action Plan was prepared by has been adopted by the Mason County Board of County Commissioners. Work on the tasks designated in the Matrix is being completed by Mason County Public Health and partner agencies as resources allow until a sustainable source of funding is obtained

The three data sources required for consideration of an area for MRA designation are:

1) Shellfish growing areas that have been threatened or downgraded by DOH,
2) Marine waters that are listed by Ecology for low-dissolved oxygen or fecal coliform (303(d) list), and
3) Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer.

Shellfish growing areas that have been threatened or downgraded by DOH. Each growing area contains a series of sampling stations. Samples are collected over time from each station and tested for fecal coliform to determine water quality at those locations. The results of these fecal coliform tests drive the classification of the growing areas according to National Shellfish Sanitation Program (NSSP) standards. When these standards are not met, a shellfish growing area is downgraded to a lower category. The four classifications, from best to worse, are "Approved," "Conditionally Approved," "Restricted" and "Prohibited."

If water quality at one or more sampling stations indicates worsening water conditions over time but has not yet exceeded NSSP standards, those sampling stations might receive a status of "Concerned" or "Threatened." A "Threatened" status means that a portion of the growing area will be downgraded if water quality does not improve or worsens. Threatened water quality at stations in Hood Canal and Oakland Bay was one of the considerations used when assessing MRAs outlined in this Plan.

Another consideration is the downgrade of a growing area. When a portion of a growing area changes to a worse classification it is considered "Downgraded" and is included in the determination of a Marine Recovery Area. The DOH Shellfish program publishes annual reports of growing areas listing all the downgrades and threatened areas for the year. Any growing area with a classification of "Conditionally Approved," "Restricted," or "Prohibited" should be considered in an MRA analysis with the understanding that a growing area with one of these designations would not automatically lead to an MRA, but would be a very significant reason for such classification.

Marine waters that are listed by the Department of Ecology under section 303(d) for low-dissolved oxygen or fecal coliform bacteria. Another way possible MRAs in Mason County are identified is through the Department of Ecology's 303(d) listing for low-dissolved oxygen and fecal coliform bacteria (See **Appendix D**).

Marine waters where nitrogen has been identified as a contaminant of concern by the local health officer. RCW 70.118A.040 (1) (c) directs the local health officer to propose a marine recovery area for those land areas where existing on-site sewage disposal systems are a significant factor contributing to concerns associated with marine waters where nitrogen has been identified as a contaminant of concern.

However, there are no statewide standards for nitrogen in marine waters to help in the determinations of possible MRAs because of nitrogen contamination. Studies by the University of Washington and USGS continue in Hood Canal looking for the nitrogen/low dissolved oxygen connections. Because Hood Canal has been designated ARZ #1, Mason

County has determined it to be a MRA without additional nitrogen data from the ongoing HCDOP projects.

4.3.2 Evaluation of OSS to Ensure Proper Function

When working in MRAs, Mason County Public Health will conduct field assessment of existing OSS using their Protocol for Pollution Identification and Correction (See **Appendix D**). Before conducting fieldwork, the objectives of the site visits (survey) would be defined. Generally, the surveys will determine functionality of the OSS. Fieldwork will include door-to-door sanitary surveys, resident interviews, education, dye testing as necessary and surface water monitoring to identify failing systems and provide base data for measuring success.

If an onsite sewage system is found to be functional, but not O&M friendly, Mason County Public Health advises homeowners to install O&M components (such as risers on all tanks and at the d-box, monitoring ports at near and distal ends of drainfield legs, timers and counters for systems with pumps and outlet baffle filters for all septic tanks) in order to provide the homeowner and/or professional with the means to conduct more thorough O&M inspections on their system. Mason County Public Health will pursue funding including grants or donations to provide financial incentives and assistance to homeowners to perform upgrades on their systems, as well as working with programs such as Shore Bank Enterprises to assist with funding these upgrades.

4.3.3 Determination and Repair of Failing Systems

If an OSS is identified as failing per the definition of failure in WAC 246-272A and in Mason County Public Health's local OSS code, the homeowner would be required to make the necessary repair or replacement. The homeowner is provided with information about loan programs such as ShoreBank Cascadia's (see **Appendix D**) loan program to repair their failing OSS. ShoreBank Cascadia's Hood Canal Regional Septic Loan Program offers low interest rates and liberal repayment terms. If voluntary compliance cannot be obtained within a designated length of time (per enforcement policies and procedures), then further enforcement action will be taken, up to and including fines and abatement of the pollution source.

All repaired OSS within 200 feet of marine shoreline in designated MRAs will be required to be either an alternative or a proprietary system. Standard gravity and pump-to-gravity systems do not provide for the level of treatment or level of O&M that is required in a MRA. All repaired OSS would also be required to have timers and counters, meet manufacturers O&M requirements, meet State Recommended Standards and Guidance (RS&Gs), and have monitoring ports installed throughout the system. Active enforcement of the O&M requirements will be a top priority in designated MRAs.

4.3.4 Additional Requirements within MRAs

Mason County Public Health is writing a section for the local onsite sewage code to require an inspection of the OSS at time of sale. This requirement should be in place by July 2008.

Additionally, Mason County would require the following for any new OSS installed within designated MRAs:

Standard gravity and pump-to-gravity systems
Standard gravity and pump-to-gravity systems would no longer be allowed to be installed any closer than 200 feet of any marine or freshwater body. These systems must also be made O&M accessible to the extent possible. Pump-to-gravity systems will also be required to include timers, elapsed meters and counters.

Alternative and proprietary systems (public domain and registered)
All alternative and proprietary systems in designated MRAs would have to meet the following additional requirements:

1) Timers, elapsed meters and counters would be mandatory on all systems.
2) Strict adherence to all manufacturers O&M requirements, and State RS&Gs, would be required for all proprietary systems.
3) Strict adherence to, and enforcement of, the O&M schedule will be mandatory. (Limited resources will focus first on MRAs, then on sensitive areas, finally countywide.)

4.3.5 Identifying Unknown OSS in MRAs and Ensuring Proper Function

Each year, one way that Mason County Public Health identifies previously unknown systems is through established practices such as requiring current service (pumping and/or O&M) or the creation of an asbuilt for sign off on a building permit. Information on these systems is added to the database and, over time, the percentage of unknown systems within Mason County is reduced. In order to find all OSS within Marine Recovery Areas by 2012, Mason County Public Health would employ the following strategy. This strategy would apply to all parcels within the designated MRA prioritizing activities with potentially high-risk situations taking precedence. The following outline lists Mason County Public Health's proposed MRA on-site strategy:

- Within each newly defined MRAs, Mason County Public Health would develop a known, assumed and unknown OSS data set using parcel data and permitting data as is currently in progress for countywide O&M monitoring.

- Mason County Public Health would identify property owners where there are assumed and unknown OSS and request information regarding their OSS by mail. This may include as-builts, O&M records, building permits or other pertinent information.

- Mason County Public Health would prioritize the developed areas within MRAs where OSS data is missing in order to identify why the data gaps exist and prioritize work efforts (such as conducting sanitary surveys) to fill in those data gaps.

- Mason County Public Health would update the electronic database and paper records as new information becomes available. As required by RCW 70.118A.060(2), Mason County Public Health will assure that the data compiled within the MRAs would be compatible with the OSS data systems used throughout Mason County.

Once the Mason County BOH and the community agree with the strategy herein, Mason County Public Health would begin to conduct field assessments of existing OSS within the MRAs. Before conducting fieldwork, the objectives of the site visits (survey) would be defined. Generally, the surveys would be used to determine functionality of the OSS. Fieldwork would include door-to-door sanitary surveys, resident interviews, education, dye testing as necessary and surface water monitoring to identify failing systems and provide base data for measuring success. Fecal coliform bacteria contamination from other sources such as stormwater runoff and animal waste (including from hobby farms) would be useful information for further investigation in coordination with partner agencies such as DOH, DOE, WSDA, Tribes, the Mason Conservation District and others.

The Mason County Public Health's MRA strategy would encourage citizen participation via education efforts. These efforts currently and will continue to include public meetings, direct mailings, news releases, newspaper articles, public information advertisements, community events (fairs, markets, etc.), workshops on on-site sewage system O&M, providing homeowners with copies of their OSS records, and providing technical advice and information brochures on OSS maintenance.

Mason County Public Health manages OSS data within the MRA via the existing O&M database system. The strategy addresses data maintenance to ensure that OSS are not failing within the MRAs. Data maintenance includes: report collection, data entry, verification of data accuracy, ensuring that data is shareable, mechanisms in place to recover costs, linking O&M reports to parcel data, and the ability to follow-up with problems that are identified. O&M data will also be useful in the performance evaluation of O&M providers within the jurisdiction when that program begins as part of the plan implementation work funded by DOH.

4.4 Electronic Data System of OSS within a MRA

4.4.1 Reporting Failing Systems to Mason County

Report Submission

An OSS maintenance specialist, septic tank pumper, or other person performing O&M on a septic system in an MRA, or anywhere in the county, can currently submit reports via the on-line database located at www.waseptic.com using an issued username and password. Submissions can also be dropped off to Mason County Public Health, Mason County Building III or mailed to PO Box 1666, Shelton, WA 98584.

Unsatisfactory Reports

The procedure for reporting failing systems in an MRA would be the same as it is for all failing systems. When a report is entered as "unsatisfactory" by the O&M specialist, the record is tagged within the Carmody database. The tagging may be linked to any

prescribed actions. Currently, unsatisfactory reports in any area places the record on a notification list where the homeowner will be sent a notification that such a report is on file, details of the issue that caused the report, and instructions in the O&M needed to address the concern. This notification includes a mail-back form for the homeowner to fill out stating how the issue was resolved. The homeowner would continue to receive such reports until the issue is resolved and updated in the Carmody database or until staff have intervened.. This resolution can be as simple as a statement saying the problem was fixed to enforcement by onsite program staff. Each case is evaluated by risk and follows local Public Health enforcement policies and procedures as outlined in "Mason County Board of Health Policy and Procedure Manual".

Additional Activities & Tools Needed in Finding Failing Systems
Currently, Mason County Public Health does not have enough resources to follow-up on unsatisfactory, non-failing reports besides sending the notifications. There is currently no enforcement actively pursued for non-failing unsatisfactory reports. There is immediate follow up to failing septic system reports. Mason county Public Health will identify the resources needed and their associated costs and will pursue funding.

Coordination with DOH
Mason County Public Health will be working with the DOH to develop common forms and protocols to facilitate the sharing of data on MRAs.

4.4.2 Ensuring Electronic OSS Data Systems for Each MRA are Compatible within Mason County (addressed in Part One)

Because the record and report submission process is identical across Mason County, OSS data systems for each MRA would be compatible within Mason County. Mason County Public Health will work with other agencies, as applicable, that maintain OSS data to ensure that the data systems are as compatible as possible.

4.5 DOH Contracts with Mason County for Marine Recovery Area

4.5.1 Mason County's current capacity and estimated need (personnel, financial assistance, hardware and software, etc.) to meet certain goals

Mason County would not be able to meet the goals outlined in this Plan without financial assistance to provide more personnel and software. Specifically:

1) Additional long-term and stable funding for two additional Full Time Employees (FTEs) to conduct sanitary surveys of OSS in designated MRAs is needed. Without additional personnel, the needed sanitary survey work in designated MRAs could not be performed. Funding sources will include local and state funding, or a combination of both. Current funding is through a proviso fund grant and will run out in 2008. There is no sustainable funding to conduct the necessary work outlined herein into the future past 2008. Centennial Clean Water Fund grants, if awarded, may fund some of this work in the future. Mason County has identified a source of funding for additional resources in the Oakland Bay MRA.

2) Workspace is a severe limitation for the Mason County EH department. Even if a stable funding source was secured to add FTE to complete the work outlined herein, there is no more space available to add FTE. Until a new or additional workspace can be identified and secured, adding FTE would be difficult. The County is currently reviewing space needs and planning for future expansion.

3) Additional and short-term funding to complete the document-scanning task would be helpful. One full time Community Development FTE is working on this task. Without additional staff, the project will take several years to complete.

4) Customized filters designed and implemented for the database are needed. Funding would be used as needed to perform customized data retrieval/queries for OSS in designated MRAs.

If DOH can secure funding and contract with Mason County for these high priority items, implementing this Plan would be possible within given timeframes. Without additional funding, this Plan would not be able to be fully implemented and the goals outlined herein would not be achieved in a timely manner. Additional funding mechanisms will be explored by staff with recommendations made to the Board of County Commissioners.

4.6 Resources

Puget Sound Partnership, Ecology and DOH will continue to provide technical assistance to Mason County Public Health on issues related to water quality, shellfish protection districts, and closure response strategies.

4.7 Timeline

Table 4: The table outlines the steps necessary to develop and implement a Marine Recovery Area strategy:

Requirements	Activities	Deadline
1. Define possible MRA Boundaries within Mason County (RCW 70.118A.040)	1. Mason County will designate MRA's in the following areas: a. Hood Canal within Mason County jurisdiction (including Annas Bay – **See Figure 1**) b. Oakland Bay (**See Figure 2**) 2. Present data on both water quality and the status of OSS to BOH, citizens groups, OSS Technical Advisory Groups, WRIA 16, Shellfish Protection Districts, and Closure Response Teams.	1. Completed 2. Ongoing

2. Develop possible MRA OSS Strategy for Designated MRAs (RCW 70.118A.050)	By July 1, 2012, Mason County Public Health will find existing failing OSS and repair those system to code and locate/identify unknown OSS and ensure that they are functioning properly	Strategy turned in June 29, 2007
3. Require O&M Professionals to Report on all Failing Systems Found Within MRAs (RCW 70.118A.060)	Audit of professionals to insure compliance	Ongoing
4. DOH Responsibilities (RCW 70.118A.070)	DOH will: • Review Mason County Public Health Sewage Management Plan for completeness • Within 30 days, approve the possible MRA Strategy or suggest changes DOH will assist Mason County in: Developing or enhancing OSS electronic data systems via funding	Sewage management plan to DOH by June 29, 2007 Revised management plan to DOH by December 11, 2007
5. DOH Contracts with Mason County to Implement the Plan (RCW 70.118A.080)	Mason County's details steps towards the progressive improvement of: • Increasing the percentage of OSS represented in the database accurately • Increasing the percentage of OSS receiving inspections within the appropriate service intervals • Finding failing OSS and making needed repairs Finding and inspecting unknown OSS	Upon Mason County BOH adoption of the plan
6. Financial and Technical Assistance (RCW 90.48.595)	The Department of Ecology shall provide financial and technical assistance to Mason County for Pollution Identification and Correction programs within designated MRAs. ShoreBank Cascadia or other similar porgrams will provide low interest loans to homeowners with failing OSS to repair their OSS. Priority will be given to low-income and financially distressed homeowners	Ongoing Ecology grant work in Hood Canal to be completed by December 31, 2008 Ongoing
7. 3SHB 1458, Sec. 11 (this section not codified)	DOH report to Legislature on progress made toward MRA designation and strategy implementation. Mason County will provide information to DOH.	December 31, 2008 (DOH task)

4.8 Summary

Mason County Public Health has initially designated two MRA's: Hood Canal and Oakland Bay. Mason County Public Health will implement new requirements for installations of OSS within the designated boundaries that will improve O&M accessibility. Mason County Public Health will aggressively seek out existing OSS with no records and assure their functionality and have them entered into the database. As part of the Oakland Bay Response Plan, one-third of the designated area will be targeted for intensive water quality and onsite sewage inspection and monitoring each year. With the data from the previous Lower Hood Canal Sanitary Survey and the work currently being done in the Canal with Legislative Proviso funding, most of the developed parcels in Hood Canal are included in the O&M data base. With Plan Implementation funding from DOH, Mason County Public Health will focus on identifying data gaps and missing parcel information. Mason County Public Health will also assure that these tasks are completed by no later 2012.

Part 5: Education

5.1 Introduction

This part of the Plan describes the OSS education activities that the Mason County Public Health conducted prior to the establishment of the new state law, and the activities that the Division plans to conduct to support the provisions of this Plan. This section relates to the following elements of WAC 246-272A-0015(1):

> d) Facilitate education of homeowners regarding their responsibilities under this chapter, including the connection of O&M to the risks of failing OSS to public health, and provide operation and maintenance information for all types of systems in use within the jurisdiction;
> e) Remind and encourage homeowners to complete the operation and maintenance activities as identified; and
> h) Describe the capacity of the local health jurisdiction to adequately fund the local OSS plan, including the ability to find failing and unknown systems.

.5.2 Activities

5.2.1 Public classes & events

Mason County Public Health holds public classes with Washington State University Extension Office supplementing WSU's presentation with hands-on interactive items such as OSS equipment and models, as well as participating in joint mailings (sent to over 6,000 residents). Most classes focus on Shellfish Protection Districts. Four classes occurred in 2006 and four more in 2007 (see Timeline below). Classes also include professional education events for area professionals and well as homeowners.

Special attention is given to Annas Bay residents to provide public information and education on water quality issues. Local organizations and citizens groups will be included in providing citizens with information about OSS and non-point pollution control

Mason Conservation District and Mason County Public Health-Water Quality program provide water quality educational programs for North Mason and Hood Canal School Districts. One event with MCD for a program called "Kids with Conservation Knowledge," the kids "experienced" a septic system by being "flushed down a toilet." The event was very well received and provides a model for similar future events Mason County is planning.

At the following events, Mason County Public Health staff presented information about OSS to community groups:

- Lower Union River Restoration Project public meeting (Spring 2004)
- Lower Union River Restoration Project public meeting (Summer 2004)
- Hood Canal Cooperative group presentation (September 2004)

Mason County Public Health staff exhibited at the following community fairs. Educational materials were distributed to booth visitors, septic questions were answered, and a sign-up sheet for requests for septic records was available.

- Dewatto Days
- Tahuya Days
- Oysterfest
- Harmony Hill Summerfest

Mason County Public Health staff engage in frequent visits to homeowner association meetings allowing effective one-on-one educational opportunities with homeowners. Some of the past communities visited include:

- Ayock Beach
- Colony Surf
- Mariner's Reach
- Hood Canal Co-op
- Harstine Island Community Club

5.2.2 Educational Forms & Handouts

With the Centennial Clean Water Fund Grant, Mason County Public Health has been able to develop a web page for Public Health that provides educational information for septic system owners. These resources include electronic copies of brochures, lists of certified pumpers and O&M specialists, and a schedule of maintenance with explanations of the value in maintaining systems. These educational forms and handouts are located on the Mason County Public Health website at: http://www.co.mason.wa.us/envhealth/septic/index.php, and include:

- *Back to Basics*: Brochure providing environmentally friendly (and septic friendly) alternatives for household cleaners. This brochure was adapted (with permission) from a copy of Washington State University Extension Program
- *Do's and Don'ts*: Fact sheet presenting a list of things to do and things not to do for your septic system health.
- *List of Pumpers & Operation & Maintenance Specialists* currently certified in Mason County.
- *Homeowner's Septic System User's Manual*: Homeowner manuals have been sent to owners of newly installed septic systems along with their system as-builts since 2002. Recently, a revised and simplified homeowner manual was developed from the Centennial Grant that is now sent to all new system owners and others in targeted education activities. The homeowner manual is available on the county web site and in hard copy by request. The Manual includes:
    - System Do's and Don'ts
    - Information for all Septic System Users (including maintenance, system descriptions, common problems, location, pumping, inspection & maintenance,)
    - Individual System Information
        - System Configuration Drawings
        - Component Fact Sheets
        - As-built worksheet
        - Maintenance Record Log

In addition to the above materials, the following information is also prepared and mailed to all homeowners in the Centennial Grant population and also provided to other interested persons at community events and programs:

- *Schedule of Maintenance* for each type of septic system adapted from the Mason County Onsite Standards
- *Homeowner Onsite Sewage and Disposal System Operation & Maintenance* form
- *Septic Sense* brochure that describes the basic components of onsite septic systems, tips for successful operation, and frequently asked questions and answers. This brochure was adapted (with permission) from a copy provided by the City of Olympia

Other handouts available from Mason County Public Health include:

- *Water: A Precious Resource*, A Report on the Health of Mason County's Water Resources – 2004. The report includes information to homeowners on sound practices for good water quality, including management of OSS.

Current Operation & Maintenance Reminders

The current operation and maintenance program includes an O&M introductory package sent to homeowners when their system installation is approved. Periodic notification is sent to residents when records indicate a scheduled maintenance is due. The Carmody database automatically produces a list of systems that are past due for their maintenance. The list is specific to the type of system and its maintenance schedule. This list is pulled by Mason County Public Health staff, printed on the appropriate reminder notice and sent to homeowners. The notification indicates that, according to County records, the system is past due for maintenance. The notification also provides the required frequency of maintenance for the particular system, list of pumpers and maintenance specialists, and contact information for Mason County Public Health staff. The notification also includes a homeowner inspection form for systems allowing homeowner inspection with an addressed postcard for the homeowner to return to Mason County Public Health. These notifications exist for conventional pressure; sandfilter and mound; conventional gravity; and non-conventional systems (including ATU, Glendon or other proprietary systems).

If a septic system has an issue noted on a maintenance report filed with Mason County Public Health, a special notification is sent to the property owner. In addition to all the above-mentioned components, the mailer includes a description of the specific issue with a returnable addressed card to describe how the issue was resolved. These mailings generate many phone calls that provides an individual and valuable educational opportunity.

5.2.3 Links to external resources

Links to external websites are located on Mason County Public Health's webpage including: WSU Cooperative Extension and Mason County Conservation District.

5.3 Planned Educational Activities to Support Mason County Onsite Sewage Management Plan

Future educational activities include increasing the number of public advertisements, general educational mailings, classes, and website activities. Outreach efforts will be

aimed at homeowners and professionals alike, including Realtors, home inspectors, onsite professionals, students, educators and landlords to name a few.

5.3.1 Septic System User manual updating and printing

Septic system User Manual will be updated and printed. A copy will be available on the Mason County Web Page. Notification of its availability will be made when it is available. The revised manual will be sent to homeowners who request them

5.3.2 Mass educational Mailing

A mass mailing will be sent to all septic system owners in the Carmody database (approx. 25,000). Included will be maintenance information, explanation of County Operation & Maintenance program, and information about Marine Recovery Areas and other special study areas. A returnable postcard for requesting septic records and user manual will be included. Recipients will be invited to request community septic workshops and will be informed about the septic information web page resources and other community educational opportunities.

5.3.3 Presentations and Reminder Mailings

Public Health will continue to cooperate with Washington State University Extension in presenting septic operation and maintenance classes. Maintenance reminders will be sent to all homeowners, according to our established reminder mailing schedule. Reminders are mailed to homeowners with septic systems that Carmody flags as not current with maintenance. Communication through mailings and web page information will invite requests from homeowner associations and other interested groups for septic maintenance presentations. Staff from the Onsite program prepares a calendar each year to schedule mailings to homeowners. This calendar has been reviewed with more frequent mailings planned.

5.3.4 Cooperative Activity With Local Realtors And Title Companies

Public Health plans to propose a cooperative project with area realtors and title companies to provide the Department with data for all home sales in the county not served by a public sewer. Data will include lists of names, site addresses, mailing addresses, and dates of sales. In return, the Department will send a packet of information to the new homeowner including Septic System User's Manual, a copy of the septic system records for the residence and other operation and maintenance materials. Public health will work these groups to develop and implement a required point of sale inspection and O&M report.

5.3.5 Develop 4th Grade-level Septic System Curriculum

Public Health plans to develop 4th grade appropriate curriculum with hands on materials to explain how septic systems work and how to treat them. Research for existing resources will be conducted. Locally specific issues will be addressed such as marine and fresh water resources in the County, and economic dependence and Public Health

5.3.6 Web-Page Enhancement

Public Health plans to enhance the Public Health Web Page by increasing Operation and Maintenance information and links to other sites with educational information.

5.4 Measured Effectiveness Of Targeted Outreach

In late December 2004 a reminder notice was sent to all tracked systems in the O&M database. Response was voluntary, however, high numbers of responses supported the value of homeowner education. Since then, reminders have been sent to homeowners not maintaining their systems according to prescribed schedules, and Mason County Public Health staff are evaluating such notification effects on O&M monitoring.

Mason County Public Health staff also looks at the response from the community contacts and outreach activities MCEH performs, as well as status on O&M reports and failures.

The County is tracking O&M reports to determine trends in response to community education campaigns as part of the onsite septic system workshops co-hosted by Mason count Public Health and WSU Extension. The report that is run using addresses of workshop attendees is evaluated to see how many homeowners are current with the service required for their particular septic system as well as how many participants had their septic system serviced after attending the workshop.

5.5 Resources

Current resources for educational outreach include county funds for further homeowner education and systematic reminders for O&M inspections. Additional resources needed to implement activities are outlined in Part 5.

5.6 Timeline

Table 5: The table outlines prioritized activities to conduct education and outreach efforts regarding O&M of OSS:

Goals	Activities	Deadline
Educate homeowners on their responsibilities and provide O&M information for all types of systems in use in Mason County [WAC 246-272A-0015(1)]	At time of installation, letter, notice to title and OSS manual is provided to homeowner detailing O&M scheduled maintenance requirements and on-going OSS care and operation.	Ongoing.
Remind and encourage homeowners to complete O&M inspections [WAC 246-272A-0015(1)]	Notifications sent to each homeowner as service is due for their individual O&M schedule	Ongoing.

Joint community classes with WSU Co-op Extension	Present at all WSU extension Septic classes. Invite homeowner groups and organizations to sponsor septic maintenance presentations.	Ongoing.
Target special education materials to residents in sensitive areas and Marine Recovery Areas	Develop education materials in consultation with new O&M requirements for sensitive areas Update O&M database to place educational notifications on O&M schedule for sensitive area and MRA residents Host educational activities in sensitive areas and MRAs.	Ongoing. Public events, workshops and classes are scheduled and happen continually. Educational materials will be developed and O&M database enhancements will occur after DOH implementation funding is received.

5.7 Summary and Prioritization of Activities

Mason County Public Health will continue and plans to augment its OSS O&M education program by providing educational materials, reminders and notification, holding public meetings and classes, attending and presenting at homeowner's meetings and community events independently and jointly with WSU Cooperative Extension, and providing access to resources for community and O&M specialists. Mason County, particularly

Glossary of OSS-Related Terms

BOH: Board of Health
CWA: Clean Water Act
DOH: Washington State Department of Health
Ecology: Washington State Department of Ecology
ECY: Washington State Department of Ecology
FTE: Full Time Employee
HCCC: Hood Canal Coordinating Council
HCDOP: Hood Canal Dissolved Oxygen Program
MCCD: Mason County Community Development
MCD: Mason Conservation District
MCDHS: Mason County Department of Health Services
MCP: Mason County Planning
MCPH-WQ: Mason County Department of Public Health – Water Quality Program
NSSP: National Shellfish Sanitation Program
O&M: Operation and Maintenance
OSS: On-Site Septic System
PSQWA: Puget Sound Water Quality Authority
RCW: Revised Code of Washington
RS&G: Recommended Standards and Guidance
SSAS: Subsurface absorption systems
TMDL: Total Maximum Daily Limit; also name for Water Quality Clean up Project
WAC: Washington Administrative Code
WSU: Washington State University

Appendices

Appendix A: Database & Related O&M Documents

A.1 Chart of Required O&M Event Frequency

A.2 O&M Report Form Copy and Septic Tank Pump & Service Report

A.3 Tidemark Available Parcel Tags

Appendix B: Maps

B.1 Mason County Jurisdictional Boundaries

B.2 Mason County WRIAs and Major Streams

B.3 Mason County Critical Areas:

a) Shellfish Protection Districts

b) Critical Aquifer Recharge Areas

d) Flood zones

B.4 Urban Growth Areas

B.5 Future Land Use Patterns

Appendix C: Graph of Mason County Population Projections to 2025

Appendix D: MRA Considerations Documents

D.1 Department of Ecology's 303(d) listing for low-dissolved oxygen and fecal coliform bacteria in Mason County

D.2 Protocol for Pollution Identification and Correction

D.3 ShoreBank Enterprise Cascadia Septic Loan Information

Appendix E: Education Materials

E.1 Notification flier example

APPENDIX A.1

Mason County Required O&M Event Frequency

(as taken from Mason County Dept of Health Services On-Site Standards, Revised Jan 7, 1999)

All on-site sewage systems require operation and maintenance care in order to function satisfactorily over an extended period of time. The following table summarizes minimum O&M frequency needed for each type of system, and the homeowner's options for who can perform the work:

Inspection Interval	Conventional Gravity or Graveless Chambers With or without Reduction	Pressure Dist. Or Siphon	Mound or Sandfilter	Aerobic Units	Disinfect Units
First 6 weeks					PRO CMS
First 6 months		CMS		PRO CMS	
As required by the manufacturer or NSF, nut no less than every 6 months				PRO CMS	PRO CMS
Year 1 of cycle		HO CMS			
Year 2 of cycle		HO CMS			
Year 3 of cycle	HO PUM INS DES CMS	CMS			

HO=Home Owner
PRO= Proprietary Device Licensee
PUM=Certified Pumper
INS=Certified Installer
DES=Certified Designer
CMS=Certified Maintenance Specialist

APPENDIX A.2

Mason County
Operation & Maintenance Report

☐ Residential	☐ Motel	☐ Food Service Restaurant
☐ RV Park	☐ Youth Camp	☐ Other, Please Describe:
☐ Campground	☐ Mobile Home Park Space # ___	_____

Property Owner _____ **Phone #** _____
Business name (if applicable) _____
Mailing address _____**City**_____**State**___**Zip**_____
Site address_____ **City** _____
Tax parcel # __ __ __ __ __ **--** __ __ **--** __ __ __ __ __

Components Inspected

☐ Yes	☐ No	☐ N/A	**Grease Trap**
☐ Yes	☐ No	☐ N/A	**Septic Tank**
☐ Yes	☐ No	☐ N/A	**Pump Tank**
☐ Yes	☐ No	☐ N/A	**Pump**
☐ Yes	☐ No	☐ N/A	**Control Panel**
☐ Yes	☐ No	☐ N/A	**Pretreatment Unit**
☐ Yes	☐ No	☐ N/A	☐ **Sandfilter** ☐ **ATU** Specific Type: _____
☐ Yes	☐ No	☐ N/A	**Disinfection Unit** Specify Type:_____
☐ Yes	☐ No	☐ N/A	**Drainfield** Specify Type: _____

Comments and Recommendations: _____
_____
_____
_____
_____

Inspection Results: ☐ Satisfactory ☐ Unsatisfactory

Operation & Maintenance Specialist Signature: _____
Company Name: _____
Date of Service _____

Findings and determinations of this inspection reflect conditions as they existed on the day the septic system was serviced. No claim is made by this company, either expressed or implied, concerning success or failure of the septic system.

Mason County Department of Health Services• 426 W Cedar• Mason County Building III
PO Box 1666 •Shelton, WA 98584 • (360) 427-9670 ext. 352

White copy – Health Department ***Yellow copy – O&M Specialist*** ***Pink copy - Owner***

APPENDIX A.2 (cont)

Mason County
Septic Tank Pump & Service Report

☐ Residential	☐ Motel	☐ Food Service Restaurant
☐ RV Park	☐ Youth Camp	☐ Other, Please Describe:
☐ Campground	☐ Mobile Home Park Space # ___	_____

Property Owner _____ **Phone #** _____
Business name (if applicable) _____
Mailing address _____**City**_____**State**___**Zip**_____
Site address_____ **City** _____
Tax parcel # __ __ __ __ __ **--** __ __ **--** __ __ __ __ __

SEPTIC TANK
Tank Size: ____**Gallons # of Compartments:**____ **Tank Construction:** ☐ Manufactured ☐ Homemade
Tank Material: ☐ Metal ☐ Wood ☐ Concrete ☐ Fiberglass ☐ Other_____
Effluent Level: ☐ High ☐ Normal ☐ Low **Tank Condition**: ☐ Satisfactory ☐ Needs Repair
Tank Pumped: ☐ Yes ☐ No **Were repairs made to the tank?** ☐ Yes ☐ No
If yes, please explain: _____

BAFFLES
Inlet Baffle Condition: ☐ Satisfactory ☐ Needs Repair
Outlet Baffle Condition: ☐ Satisfactory ☐ Needs Repair
Center Baffle Condition: ☐ Satisfactory ☐ Needs Repair
Effluent Filter Cleaned? ☐ Yes ☐ No ☐ Not Applicable
Were repairs made to the baffles? ☐ Yes ☐ No
If yes, please explain: _____

PUMP or SURGE TANK ☐ Yes ☐ No **If yes, tank size:** _____Gallons
Were repairs made to the pump or surge tank? ☐ Yes ☐ No
If yes, please explain: _____

SEPTAGE
Depth of Floating Mat: 1st Compartment:_____ 2nd Compartment: _____ Pump Tank_____
Depth of Sludge: 1st Compartment:_____ 2nd Compartment: _____ Pump Tank_____
Total Gallons Pumped _____
General Comments: _____
_____

Date Pumped_____ **Recommended Next Pumping Date**_____
Certified Pumper Signature _____ **Company Name** _____

Findings and determinations of this inspection reflect conditions as they existed on the day the septic system was serviced. No claim is made by this company, either expressed or implied, concerning success or failure of the septic system.

Mason County Department of Health Services• 426 W Cedar• Mason County Building III
PO Box 1666 •Shelton, WA 98584 • (360) 427-9670 ext. 352

White copy – Health Department ***Yellow copy – O&M Specialist*** ***Pink copy - Owner***

APPENDIX A.3

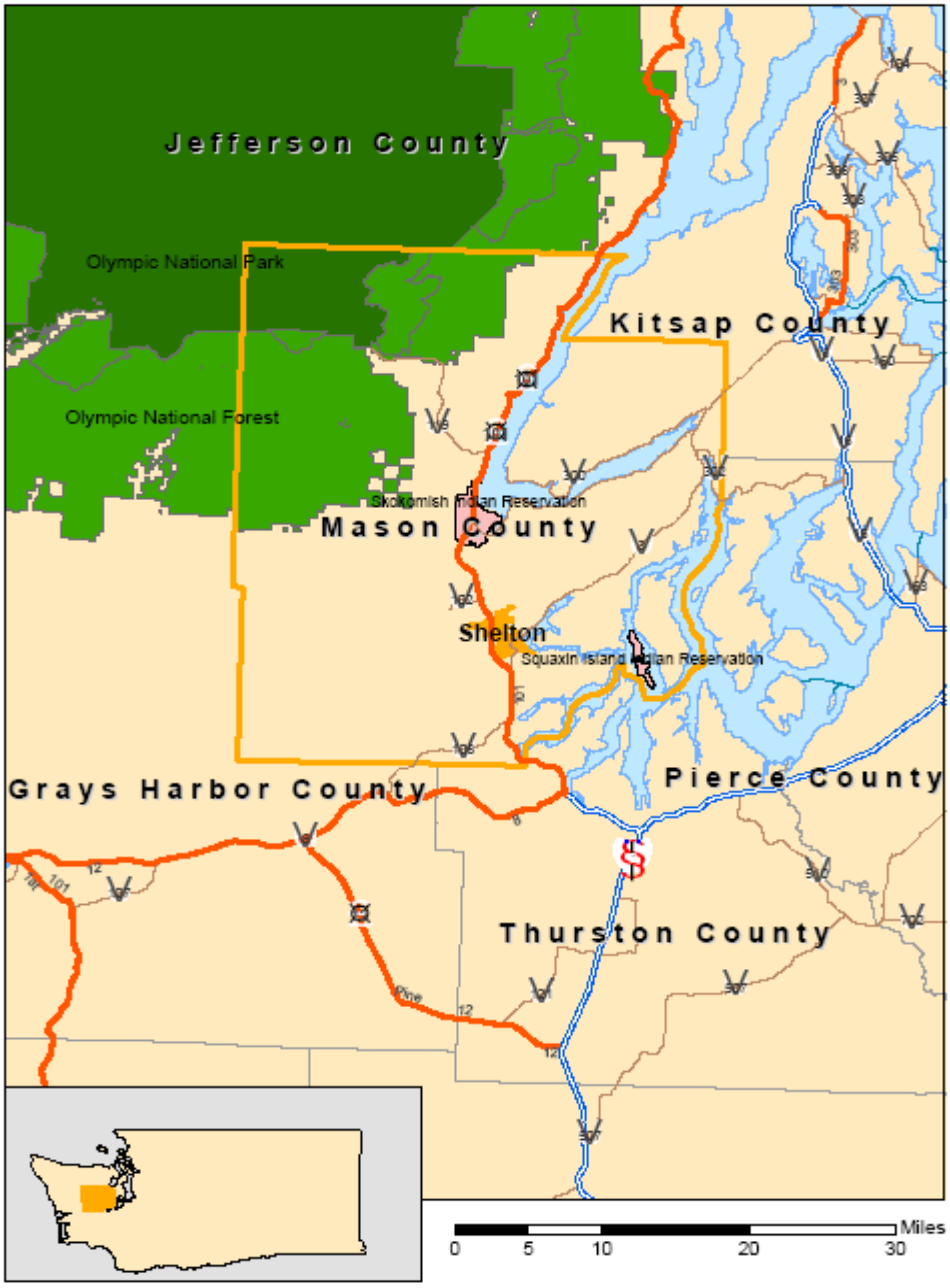
Tidemark Available Parcel Tags

Activities
6 Year Development Moratorium
Address Fee PAID
Archaeological Site
Bald Eagle Nest
Building Dept. Issue
Check Parcel/Compliance
Clandestine Meth Lab
Contact Gary Y prior to issue
County Sewer & Water
Created for SEPA
Created for Shrine Exempt
Dangerous Building
Deleted, See short plat
Drainage Control Required
Eagle Territory / Nest
Fees Due
Fire Marshal Review Required
Fire Protection Required
Floodplain
Geological Hazards
Great Blue Heron Rookery
Illegal Fill/Excavat/Grading
Multi Address-Contact 291
NB sewer call ext 296
Needs RID Approval-Planning
No Residence/Sewage Rec. Only
Non-conforming building
Non-conforming parcel
Non-conforming use
Plan Check Fee Due
Planning Department Issue
Refer to DOC in existing
Refer to Log Note in Case
RLC Fee Due
ROAD ACCESS PERMIT RECEIVED
SEPA Conditions-Planning
Septic Related Flag-See Note
Short Plat in Progress
Short Platted
Single Family Residence Only
Spotted Frog Habitat Area
Smoke Management Zone
Sprinkler System Required
Steep Slope
Stop Work Violation
Storm Water Retention Required
Stormwater Site Plans
Test Hole Alert-Drinking
Test Holes
Unbuildable Lot
Under Abatement Order
Underground storage tank
Violation
Water System Compliance
Water System Inadequate
Well Related Flag-See Note
Wetland

APPENDIX B.1

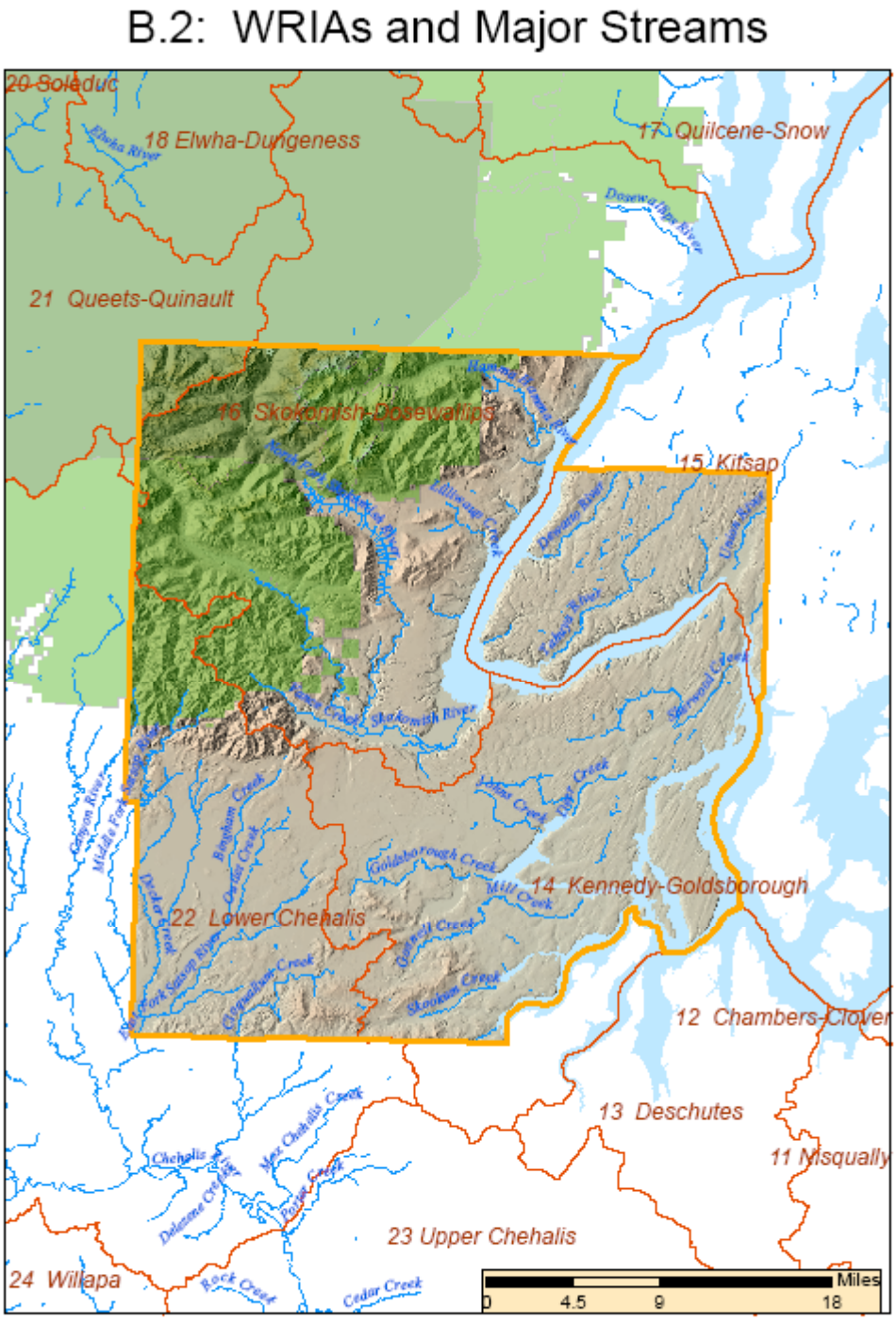
Mason County Jurisdictional Boundaries

B.1: Mason County Jurisdictional Boundaries

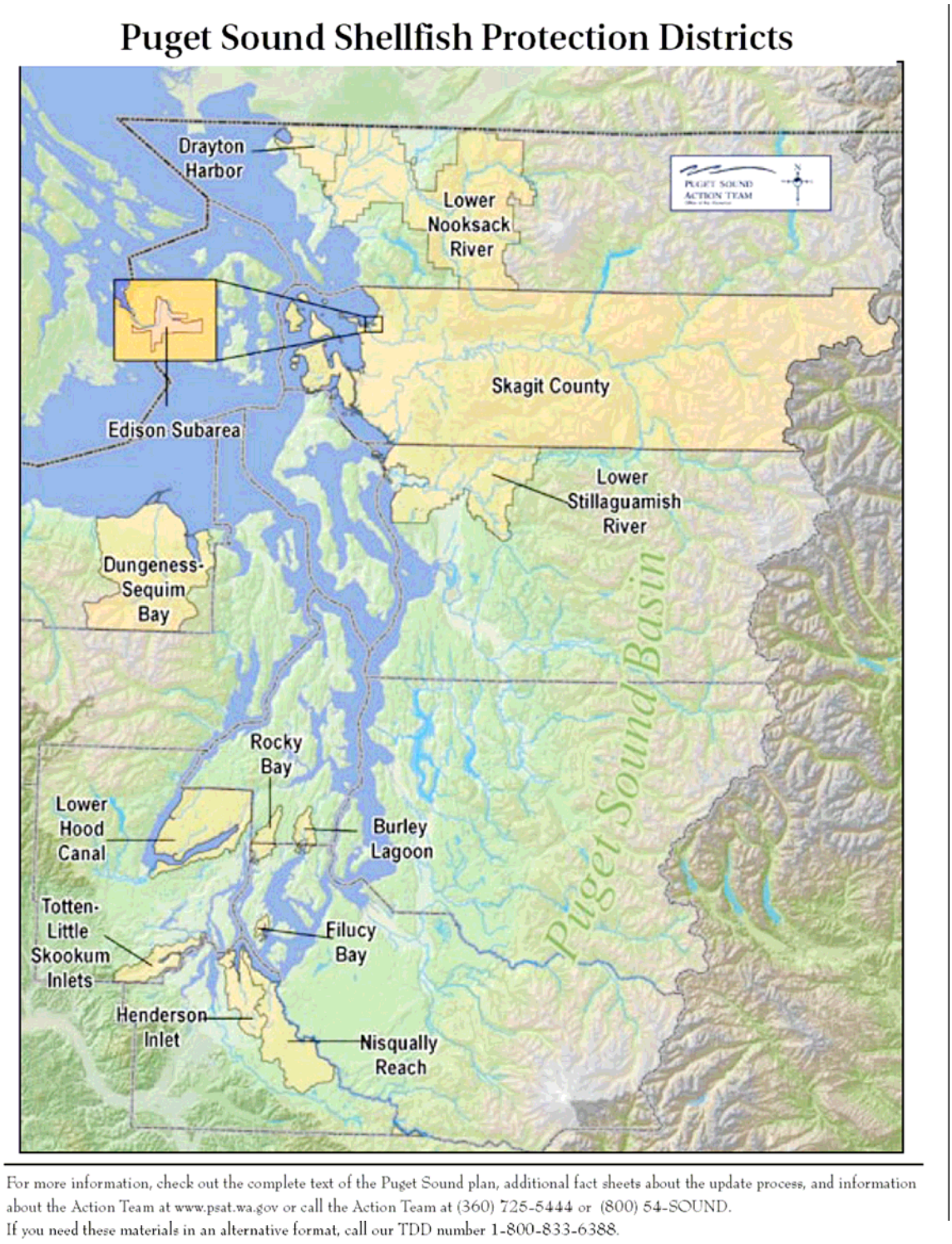


APPENDIX B.2

Mason County WRIAs and Major Streams

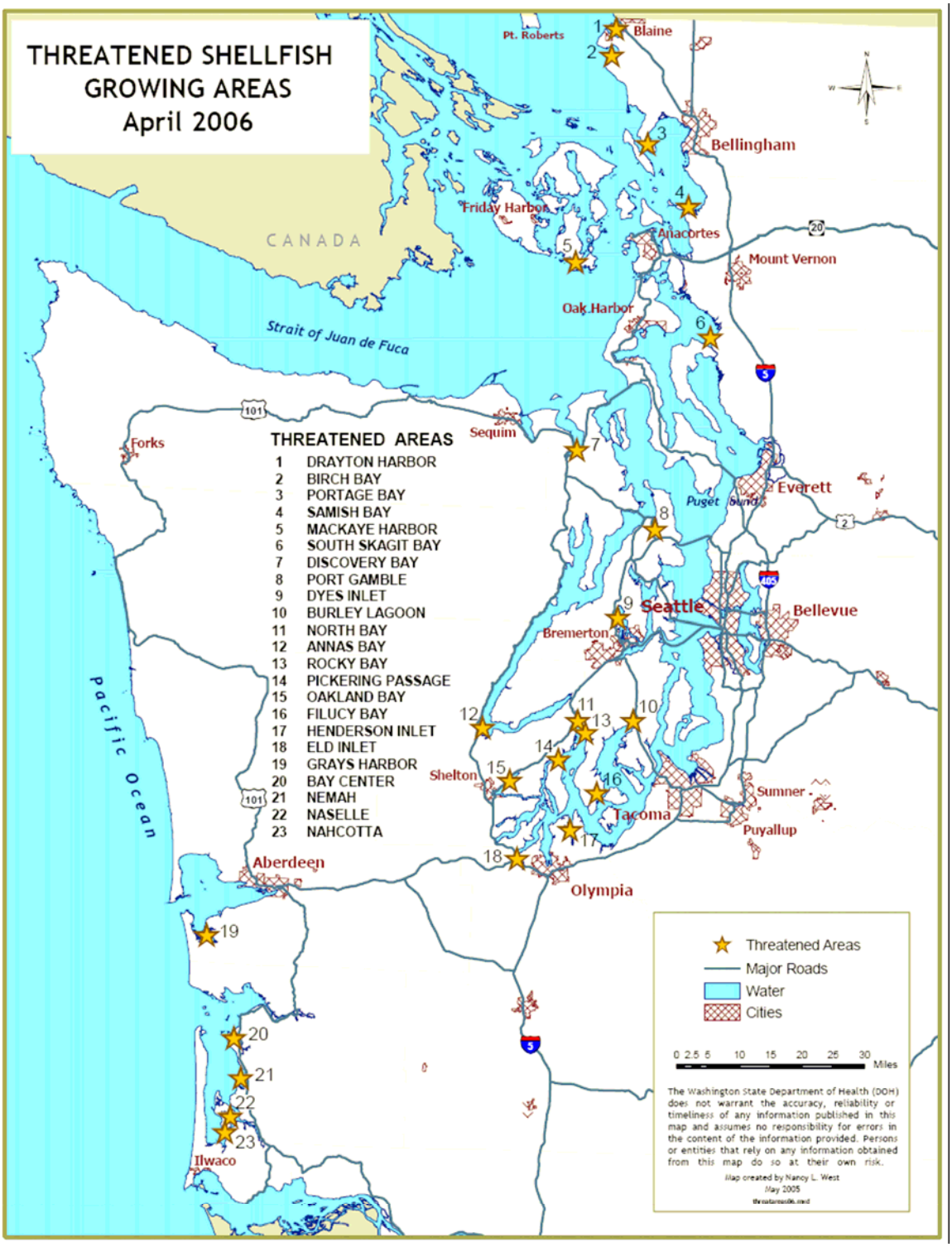


APPENDIX B.3a
Mason County Critical Areas:
Shellfish Protection Districts

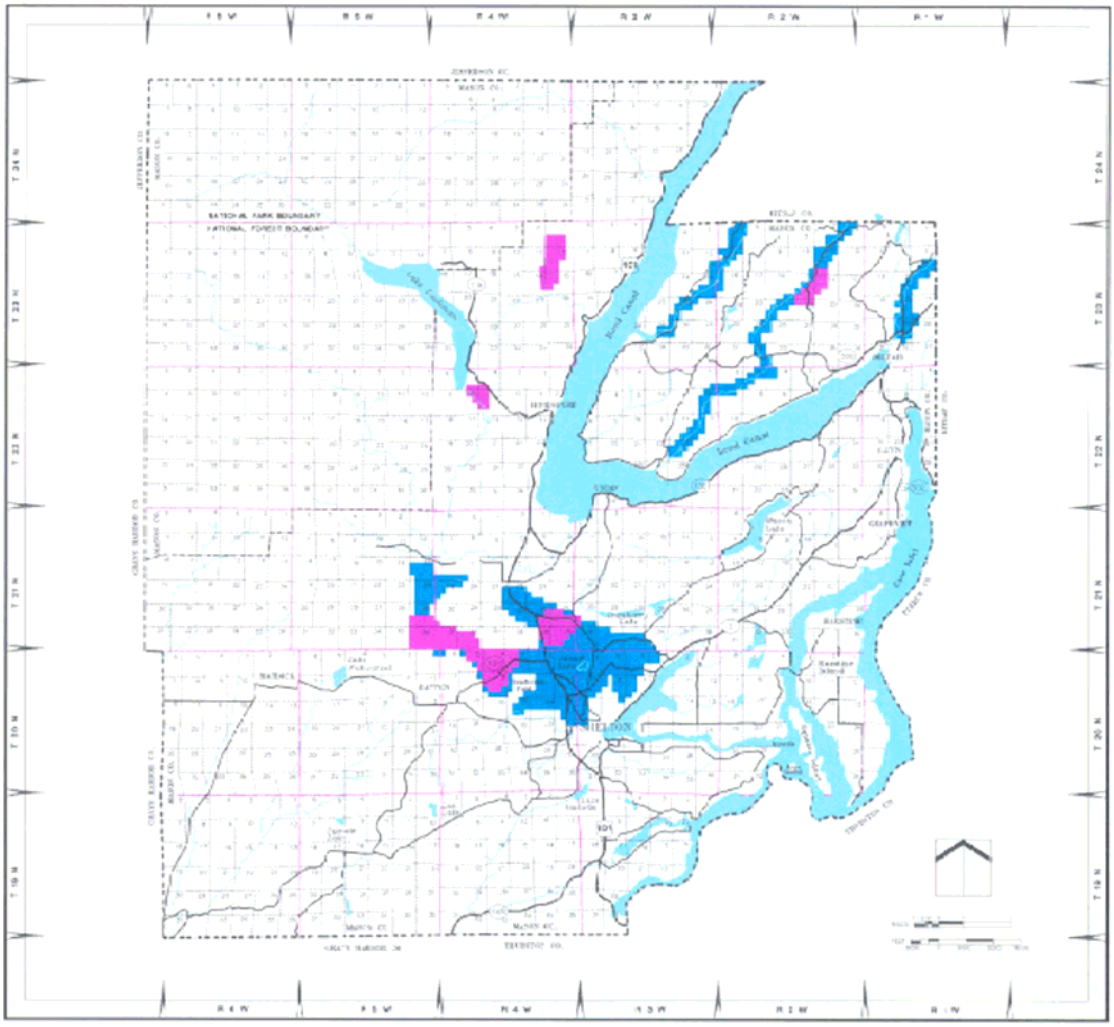


Source: http://www.psat.wa.gov/Publications/Fact_sheets/shellfish_protection_dist_05.pdf

APPENDIX B.3a (cont)
Mason County Critical Areas:
Shellfish Protection Districts

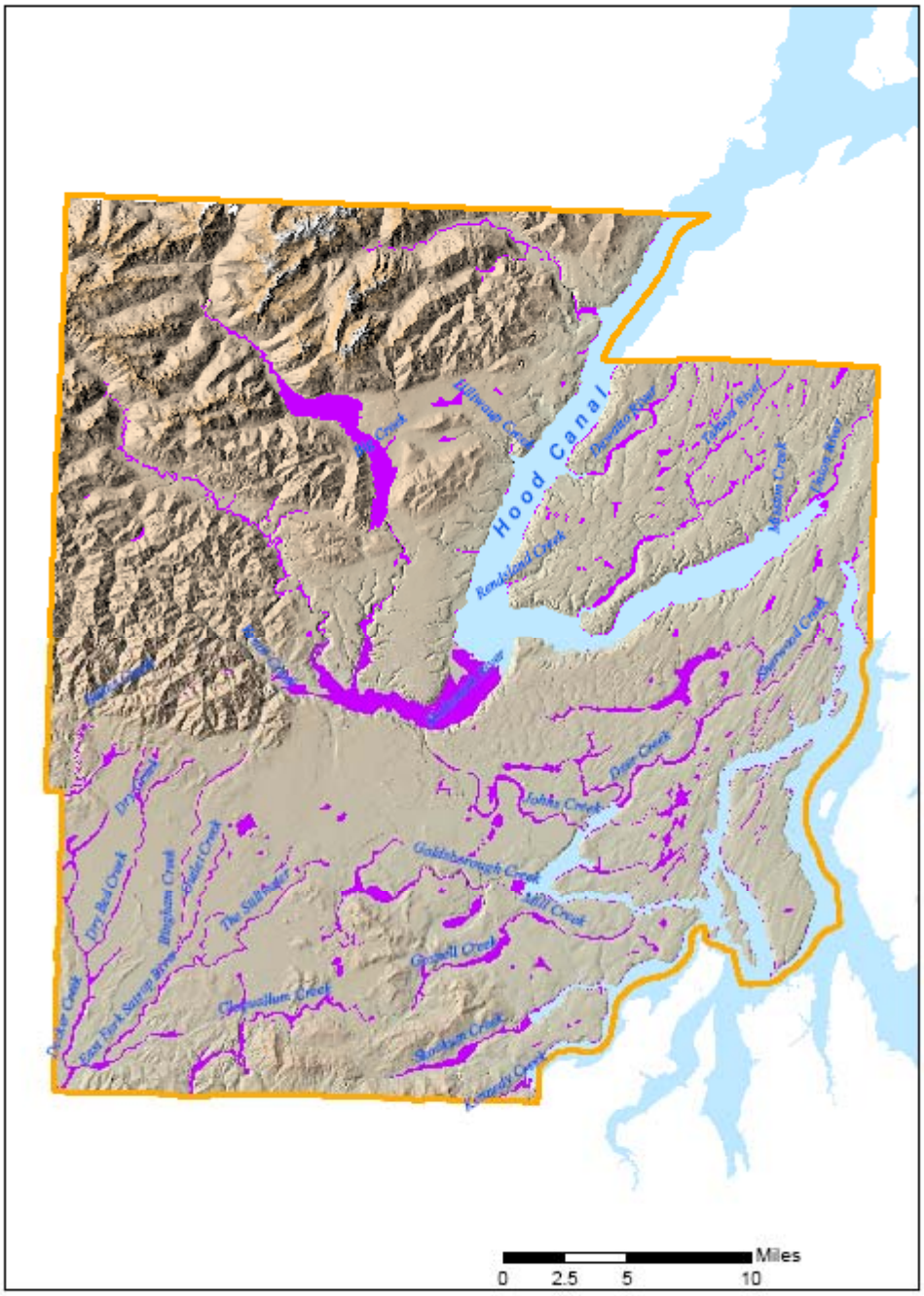


APPENDIX B.3b
Mason County Critical Areas:
Critical Aquifer Recharge Areas
(from 2005 Comprehensive Plan)

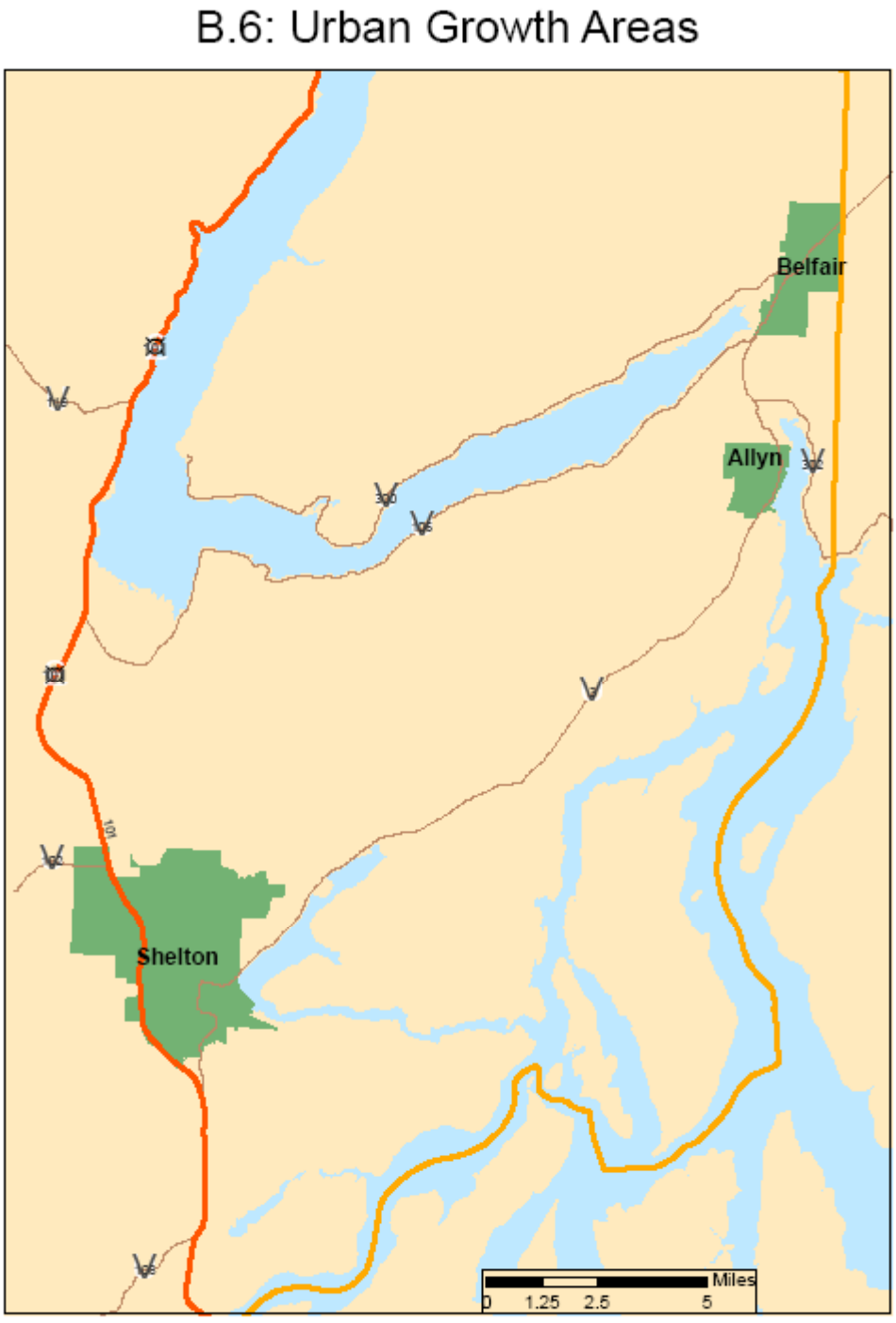


APPENDIX B.3c
Mason County Critical Areas:
Flood Zones

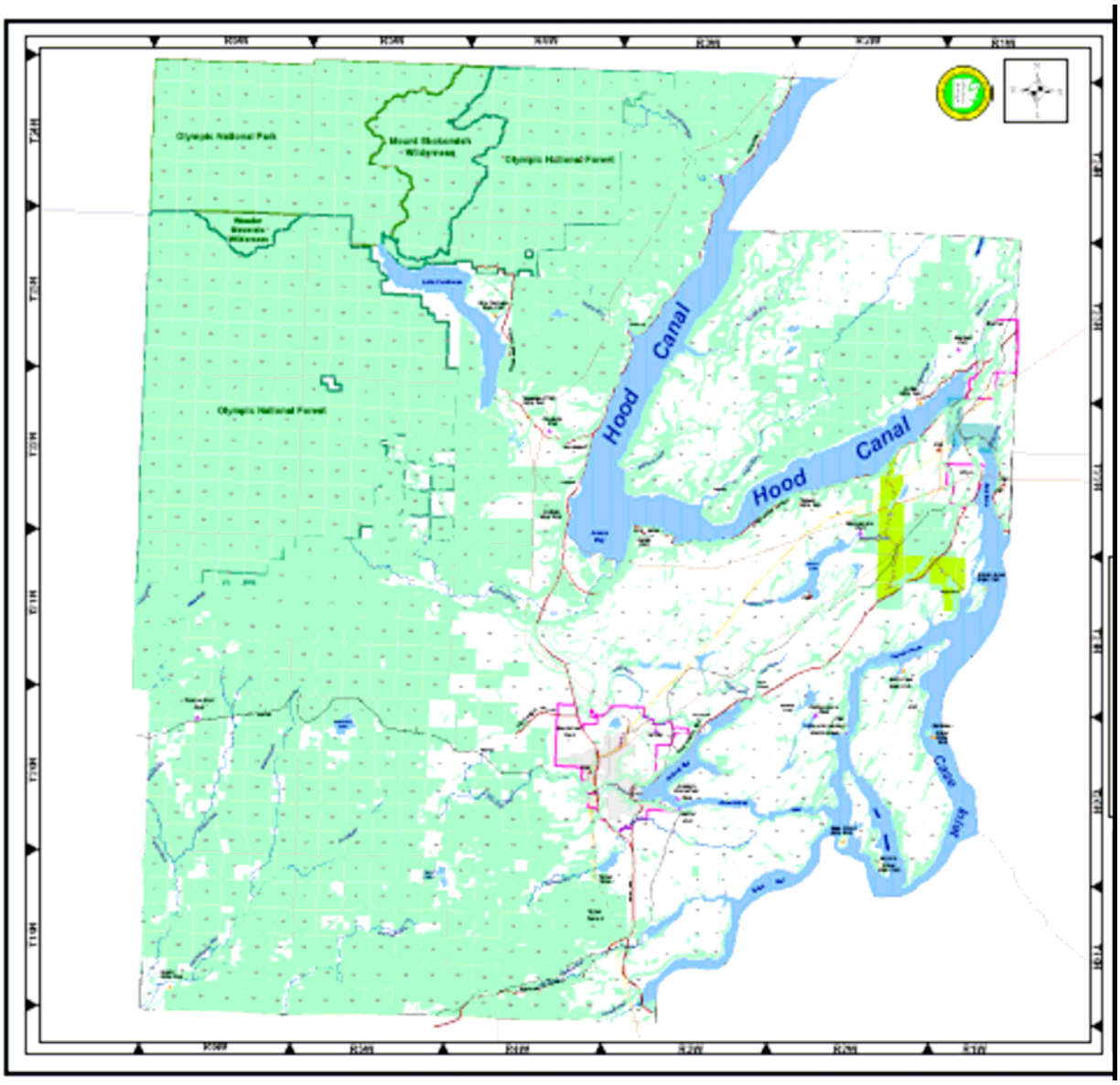
B.5.d: 100yr Flood Zones



APPENDIX B.4
Mason County Urban Growth Areas



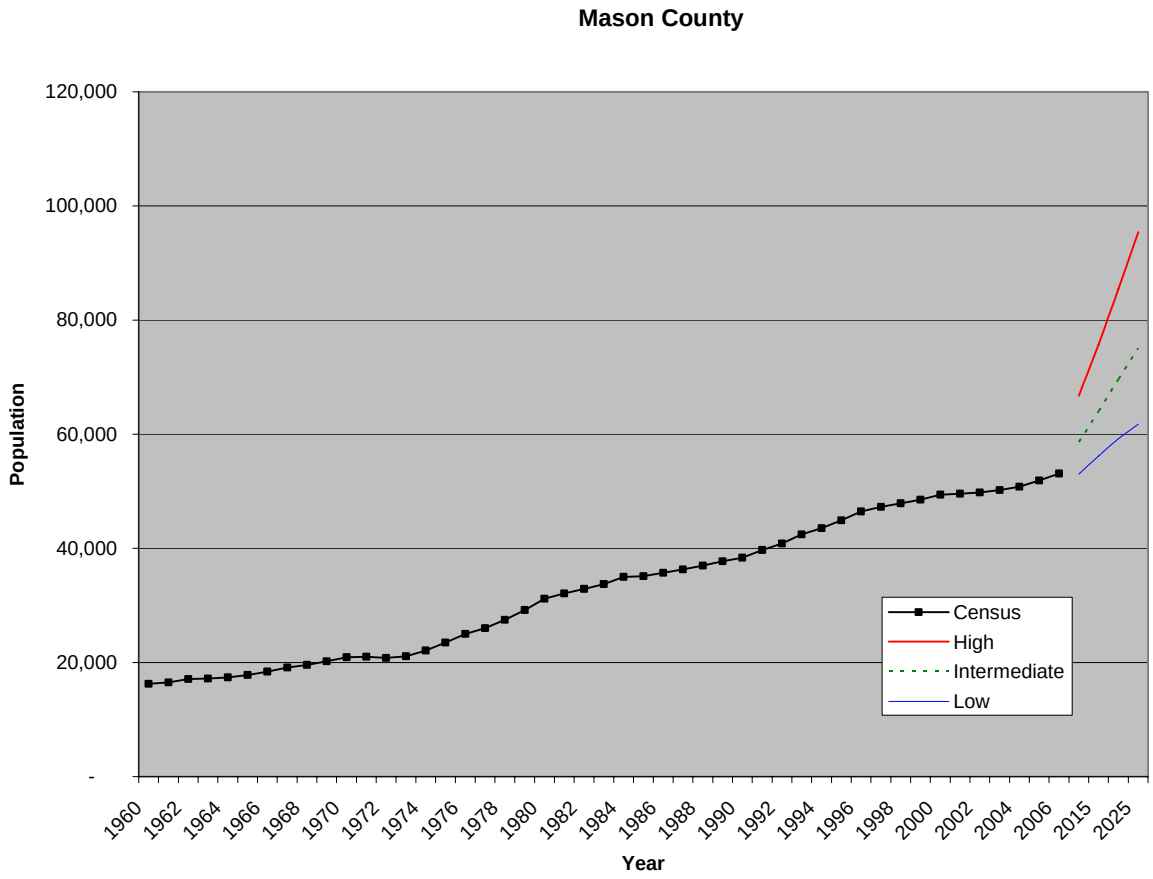
APPENDIX B.5
Mason County Future Land Use Patterns
'05 Comp Plan



PlaPlan)

APPENDIX C: Population Growth Chart

Projected Population to 2025



Source: Washington State Office of Financial Management. Data location:
http://www.ofm.wa.gov/pop/gma/projections.asp & http://www.ofm.wa.gov/pop/coseries/default.asp

APPENDIX D.1

Department of Ecology's 303(d) Listing
For
Mason County

2004 Water Quality Assessment (Final) - Category 5 Listings for WRIA 16

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	21929	5	N	**DOSEWALLIPS RIVER** Labbe et al. 2002, shows excursions beyond the criterion from instantaneous measurements collected in 2001 at Dosewallips State Park. Labbe et al. 2002, shows excursions beyond the criterion from the annual 7-day mean of daily maximum temperature from continuous measurements collected in 2001 at Dosewallips State Park. Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16D070 (Dosewallips R @ Brinnon) shows 0 exoursions beyond the criterion out of 12 samples collected between 1993 - 2001	RZ37KR 0.043 25N 02W 02	Temperature	Water
16	35261	5	N	**DUCKABUSH RIVER** Olympic National Forest unpublished data (submitted by Dale Horn on 15 January 2003) show a 7-day mean of maximum daily temperature of 17.1 degrees C on the week ending 9-11-2002, with a maximum daily temperature of 18.3 degrees C from continuous measurements collected in 2002 at RM 4.5 (station ID Duck RM 4.5). Dept. of Ecology unpublished data from core ambient monitoring station 16C090 (Duckabush R. near Brinnon) shows a 7-day mean of daily maximum values of 13.8 for mid-week 12 August 2001.; Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16C090 (DUCKABUSH RIVER NEAR BRINNON) shows 0 excursions beyond the criterion out of 52 samples collected between 1993 - 2001	SC72WD 6.914 25N 03W 01	Temperature	Water Ecology staff reviewed this listing in 2003 for natural conditions, but could not rule out the possibility that human activities contributed to the excursion(s).
16	12587	5	N	**FINCH CREEK** Washington State Department of Health unpublished data show an exoursion beyond the percentile criterion from 7 samples collected during 2000 at the Hwy 101 bridge and at the mouth near Hatchery beach.	PL30HS 0 22N 04W 12	Fecal Coliform	Water
16	40782	5	N	**FINCH CREEK** Washington State Department of Health unpublished data show an exoursion beyond the percentile criterion from 7 samples collected during 2000 at Lumberman's foot bridge Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16E070 (Finch Cr @ Hoodsport) shows a geometric mean of 19 does not exceed the criterion and that 11% of the samples exceeds the percentile criterion from 9 samples collected during 1999. Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16E070 (Finch Cr @ Hoodsport) shows a geometric mean of 27 does not exceed the criterion and that 0% of the samples exceeds the percentile criterion from 3 samples collected during 1998. Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16E070 (Finch Cr @ Hoodsport) shows a geometric mean of 8 does not exceed the criterion and that 0% of the samples exceeds the percentile criterion from 9 samples collected during 1994. Hallock (2001) Dept. of Ecology Ambient Monitoring Station 16E070 (Finch Cr @ Hoodsport) shows a geometric mean of 39 does not exceed the criterion and that 33% of the samples exceeds the percentile criterion from 3 samples collected during 1993.	PL30HS 0.241 22N 04W 11	Fecal Coliform	Water Updated with DOH information, otherwise this is a duplicate Listing ID 12588 which has now been inactivated. 10/20/04 -

of

kk

Wednesday, November 2, 2005 *Page 1 of 4*

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40978	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station SUNDRK40 shows 9 of 9 samples exceeded the criterion in year 2003, and 6 of 6 samples exceeded the criterion in year 2004.	350KRD 47123E1D1 47.435 123.115	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,

4/2005)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40979	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station SUNDRK70 shows 9 of 9 samples exceeded the criterion in year 2003, and 6 of 7 samples exceeded the criterion in year 2004.	350KRD 47123E1D1 47.435 123.115	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,

4/2005)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40980	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station BAMBAN shows 24 of 30 samples exceeded the criterion in year 2003, and 12 of 20 samples exceeded the criterion in year 2004.	350KRD 47123E1C1 47.425 123.115	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,

4/2005)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40982	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station BAMBW shows 17 of 24 samples exceeded the criterion in year 2003, and 6 of 14 samples exceeded the criterion in year 2004.	350KRD 47123E1C2 47.425 123.125	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,

4/2005)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40988	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station HAMAW shows 12 of 27 samples exceeded the criterion in year 2003, and 2 of 6 samples exceeded the criterion in year 2004.	350KRD 47123F0F2 47.555 123.025	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,

4/2005)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	40868	5	Y	**HUNTER CREEK** Skokomish Indian Tribal data (submitted by Jim Park on 2/23/96) show 1 excursion beyond the upper criterion at the Bridge on Hunter Creek on 10/95.	UNK000 0 00U 000U 00	Fecal Coliform	Water There is no WASWIS ID for this segment. The stream

drains

to the Skokomish River. JB 7-25-03: NO WASWIS ID, HAVE MORE RECENT DATA AND TMDL

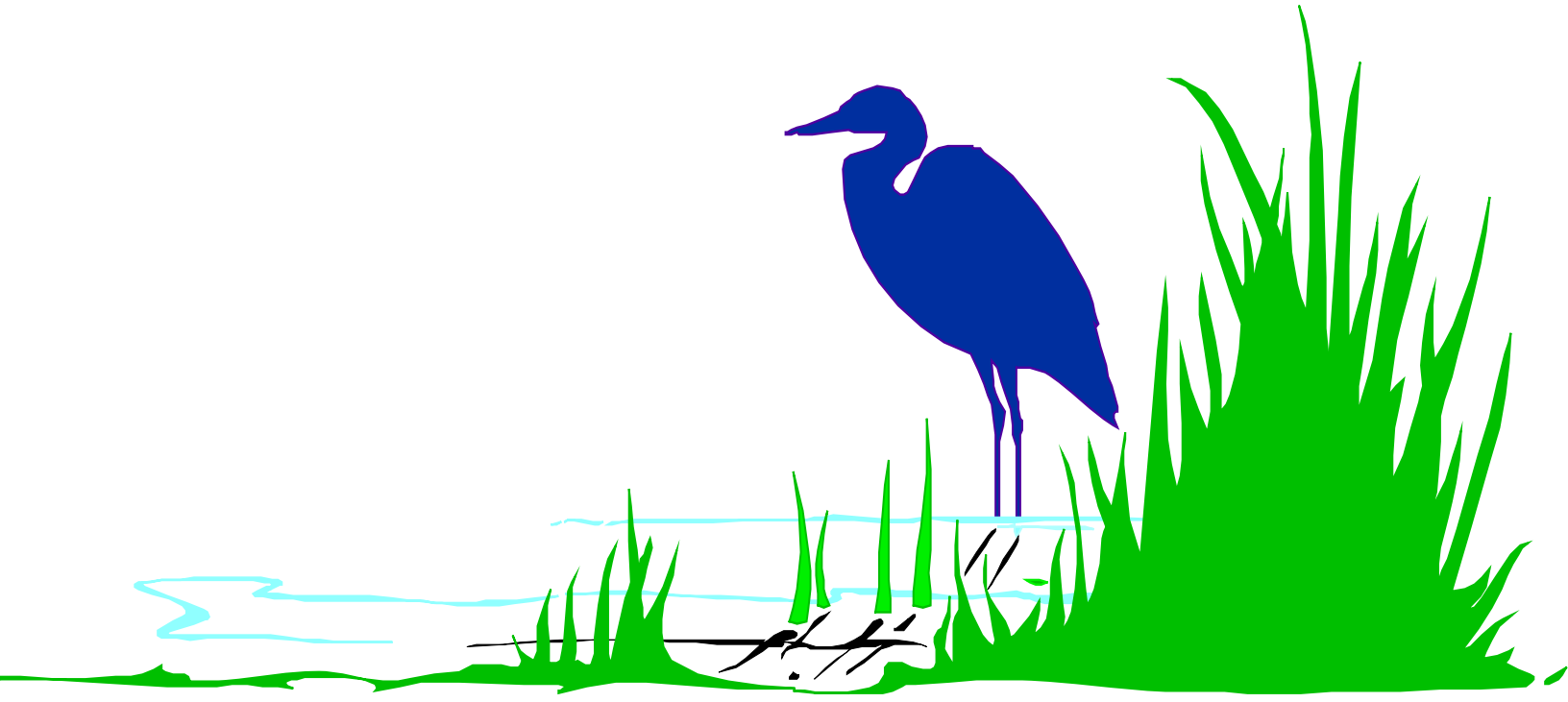
APPENDIX D.1 (cont)

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	35263	5	N	**LEBAR CREEK** Olympic National Forest unpublished data (submitted by Dale Horn on 15 January 2003) show a 7-day mean of maximum daily temperature of 16.9 degrees C on the week ending 8-15-2001, with a maximum daily temperature of 17.1 degrees C from continuous measurements collected in 2001 at RM 0.1 (station ID #17).	MR04QE 0 22N 05W 04	Temperature	Water Ecology staff reviewed this listing in 2003 for natural conditions, but could not rule out the possibility that human activities contributed to the excursion(s).
16	13931	5	N	**LIBERTY BAY** Department of Health unpublished data collected from station LIBERTY BAY-500 show a geometric mean of 5 cfu/100mL and 13% of samples exceed the percentile criterion with the last sample collected on 19-Nov-2001. Department of Health unpublished data collected from station LIBERTY BAY-498 show a geometric mean of 4 cfu/100mL and 3% of samples exceed the percentile criterion with the last sample collected on 19-Nov-2001. Department of Health unpublished data collected from station LIBERTY BAY-499 show a geometric mean of 4 cfu/100mL and 0% of samples exceed the percentile criterion with the last sample collected on 19-Nov-2001. Liberty Bay Foundation unpublished data (submitted by Luis Barrantes on 12 Decemeber 2002) from station LBNS-24 (Lemolo Cove on north side of point (Horder property)) show a geometric mean of 23 cfu/100mL from samples collected in 2001-2002. Liberty Bay Foundation unpublished data (submitted by Luis Barrantes on 12 Decemeber 2002) from station LBNS-27 (Lemolo Point north shore (Klinkowsky property)) show a geometric mean of 11 cfu/100mL from samples collected in 2001-2002.	350KRD 47122H6B2 47.715 122.625	Fecal Coliform	Water
16	7663	5	Y	**SKOKOMISH RIVER** Skokomish Indian Tribal data (submitted by Jim Park on 2/23/96) shows 2 excursions beyond the criterion at Bobby Allen's between 1995 and 1996.	WW06HB 0.889 21N 03W 07	Fecal Coliform	Water Previously and errantly reported as part of Skokomish River TMDL. This location is below Hwy 106. Returned to 5 from 4A. 12/01/04 -kk
Category							
16	35267	5	N	**SKOKOMISH RIVER, S.F.** Olympic National Forest unpublished data (submitted by Dale Horn on 15 January 2003) show a 7-day mean of maximum daily temperature of 18 degrees C on the week ending 8-9-2000, with a maximum daily temperature of 18.5 degrees C from continuous measurements collected in 2000 at RM 10.5 (station ID SFSkok RM 10.5).	QW27AV 15.396 22N 05W 15	Temperature	Water Ecology staff reviewed this listing in 2003 for natural conditions, but could not rule out the possibility that human activities contributed to the excursion(s).
16	40867	5	Y	**TEN ACRE CREEK** Skokomish Indian Tribal data (submitted by Jim Park on 2/23/96) show 3 excursions beyond the upper criterion on Ten Acre Creek at the Valley Road Bridge	UNK000 0 00U 000U 00	Fecal Coliform	Water There is no WASWIS ID for this segment. The stream
drains				between 1995 and 1996.			to Purdy Creek /Skokomish River. JB 7-25-03: NO WASWIS ID, HAVE MORE RECENT DATA AND TMDL

WRIA	Listing ID	Category	98 List?	Waterbody Name / Basis	Location Information	Parameter	Medium / Remarks
16	21928	5	N	**FULTON CREEK** Labbe et al. 2002, shows excursions beyond the criterion from instanaterous measurements collected in 2001 near Highway 101. Labbe et al. 2002, shows excursions beyond the criterion from the annual 7-day mean of daily maximum temperature from continuous measurements collected in 2001 near Highway 101.	BY80QW 0.013 25N 02W 31	Temperature	Water
16	13930	5	N	**GREAT BEND/LYNCH COVE** Department of Health unpublished data collected from station ANNAS BAY-197 show a geometric mean of 7 cfu/100mL and 19% of samples exceed the percentile criterion with the last sample collected on 13-Nov-2001.	350KRD 47123D1F0 47.355 123.105	Fecal Coliform	Water
16	40971	5	N	**HOOD CANAL** Newton (2004), Hood Canal Study station POTLCH shows 37 of 54 samples exceeded the criterion in year 2003, and 10 of 15 samples exceeded the criterion in year 2004.	350KRD 47123D1H3 47.375 123.135	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,
4/2005)							
16	40972	5	N	**HOOD CANAL** Newton (2004), Hood Canal Study station POTSO shows 17 of 36 samples exceeded the criterion in year 2003, and 5 of 13 samples exceeded the criterion in year 2004.	350KRD 47123D1G0 47.365 123.105	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,
4/2005)							
16	40973	5	N	**HOOD CANAL** Newton (2004), Hood Canal Study station POTW shows 25 of 38 samples exceeded the criterion in year 2003, and 7 of 10 samples exceeded the criterion in year 2004.	350KRD 47123D1H4 47.375 123.145	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,
4/2005)							
16	40977	5	N	**HOOD CANAL (SOUTH)** Newton (2004), Hood Canal Study station SUNDRK shows 23 of 34 samples exceeded the criterion in year 2003, and 3 of 13 samples exceeded the criterion in year 2004.	350KRD 47123E1D1 47.435 123.115	Dissolved oxygen	Water This listing was reviewed by Ecology Marine Unit staff for natural conditions, with the conclusion that anthropogenic sources appear to contribute to the D.O. exceedances. This listing should be left on Category 5 (Grantham memo,
4/2005)							

APPENDIX D.2
Mason County Protocol for Pollution Identification and Correction

Mason County Public Health
Water Quality Standard Operating Procedure
Chapter 4.2
Pollution Identification and Correction Procedures



Adapted from: ***Kitsap Health District Pollution Identification and Correction***
Prepared by: Amy Georgeson
Mason County Public Health

Water Quality Program

Mason County Public Health
Water Quality Chapter 4.2
Pollution Identification and Correction Procedure
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Chapter 4.2 Pollution Identification and Correction Projects

4.2.1 Background:

Fecal waste from warm-blooded animals can contain pathogenic bacteria, viruses and protozoa that cause human illness. Fecal coliform bacteria (FC) are used to assess the presence and level of fecal waste in surface and ground waters. FC pollution accounts for the listing of 49 surface and marine water in Mason County on Washington State's 303(d) List for impaired or threatened waters (published 2000). In addition, FC pollution has caused the following shellfish classifications: 1422 acres are conditional, 70 acres are restricted; and 2012 acres are prohibited as of January 30, 2007 per WS-DOH update.

Fecal contamination of surface waters is predominately a result of storm water runoff. During rain events, runoff transports pollutants, such as fecal waste, to local streams, bays and lakes. There are point sources of fecal contamination (permitted discharges such as wastewater treatment plant outfalls) and non-point sources of fecal contamination (such as failing on-site septic systems (OSS), inadequate animal waste management (both domesticated and wild) and unreported sewage spills).

The identification and correction of non-point source pollution is primarily the responsibility of local jurisdictions in Washington State. Mason County Public Health Department (MCPH) is governed under the authority of Chapters 70.05, and 70.95 Revised Code of Washington (RCW) and Chapters 173-304, 246-203 and 246-272 Washington Administrative Code (WAC). These rules and regulations authorize MCPH to enforce the proper design, construction, operation and maintenance (O&M) of OSS; and the handling, storage, collection, transportation, treatment, utilization, processing and final disposal of all solid wastes, including animal wastes (**Mason County Title 6 Sanitary Code, Appendix K**).

MCPH is the main agency responsible for identifying and prioritizing non-point fecal pollution and implementing fecal pollution correction programs in Mason County. In response to areas of non-point fecal pollution concerns, MCPH adopted the Pollution Identification and Correction program (PIC) from Kitsap County Health District. MCPH also addresses OSS complaints that affect Mason County Surface Waters.

The purpose of this policy is to detail and explain how MCPH conducts PIC projects in Mason County to identify and correct fecal pollution. In addition, investigating complaints follows procedures outlined in **Chapters 4.2.6, 4.2.7, 4.2.8, 4.2.9** and the WQ SOP Sanitary Survey procedure as outlined in **Chapter 4.1**.

1. **Goals:**
   - Protect public health and the environment from fecal coliform pollution impacts.
   - Identify and correct sources of fecal coliform pollution.
   - Assist in better understanding the relationship between fecal coliform and nutrients.
   - Educate the public on BMPs, so that they can implement them on their properties to minimize anthropogenic impacts on water quality.

2. Objectives:

- Investigate and identify specific sources of fecal pollution.
- Assist in timely correction of confirmed fecal pollution sources.
- Provide information and technical assistance to landowners, residents and business owners regarding the proper O&M of OSS.
- Inform landowners, residents and business owners of financial assistance opportunities that may be available to correct fecal pollution sources.
- Prevent fecal pollution by educating property owners and residents on O&M of OSS and adequate management of animal wastes.

3. Procedures Overview

PIC programs are laid out within a specified area. Once the area has been defined the steps to complete the study are as follows. Details on all aspects are described within this section unless otherwise noted.

- Public Notification of initial study proposal
  - Office Evaluation
  - Initial Project Area visit
  - Water Quality Evaluation
  - Public Notification of the WQ results
- Parcel Property owner review
- Sanitary Survey (**Chapter 4.1**)
- Results
  - Public Notification of study results

These procedures are based on the Kitsap County PIC program. However, there is no permanent funding for the water quality department, so most of the PIC studies are supported via grants or outside funding. Often times, these grants or funding sources will delineate where PIC projects are conducted. A PIC may be initiated in response to deterioration in water quality, such as a Shellfish downgrade or the listing of a waterway on the 303(d) List for fecal coliform. Also, ambient sampling completed by MCPH may alert staff to a special area of concern from analyzing downward trends of a particular waterway.

A large component of any PIC project is providing technical assistance to guide property owners through the process of correcting identified pollution sources. The surveys have a strong education component to help property owners and residents prevent fecal pollution of surface waters and to maintain a healthy functioning OSS.

4.2.2 Pre PIC Public Notification of initial study proposal

This public notification should include the following elements:

- Office evaluation of project area related information
- Initial project area visit
- Evaluation of water quality in the project area
- Notification to the public of area water quality and the upcoming PIC project

4.2.3 Office Evaluation

Review all available background information regarding the project area. Contact other agencies that have jurisdiction over the project area to coordinate with other education or water quality efforts underway. Explore potential partnerships with other entities addressing water quality issues.

An office evaluation consist of gathering any and all information related to the project area's history, geography, topography, geology, hydrology, water quality, population density, land use, development patterns and if available, any development plans for the future. The extent and scope of information gathered will be based on applicability, practicality and conformity with other WQ standards. The MCPH staff members who will be in the field and interfacing with the public should conduct the office evaluation. An adequate office evaluation should enable MCPH staff members to answer some of the following questions:

- What soils types are prevalent in the area?
- What is the area's topography and what are the major drainage patterns?
- What surface waters are in the area?
- Is recent surface water quality data available?
- What is the storm water drainage pattern of the area?
- Is there evidence of a seasonal high-water table?
- When was the area initially developed?
- How many parcels are in the survey area?
- How many residences are in the area?
- How many residences have sewage disposal permits on file?
- How many sewage complaints in the area were confirmed in the past five years?
- What were the causes of the confirmed OSS failures?
- Have the OSS system repairs been successful?
- Is the area near or adjacent to a sewer system?
- How many farms have been identified by Mason Conservation District as high priority in the area?
- How many farm plans have been implemented in the area?
- Have any water quality or OSS projects been completed in the past? What were the results?

Table 1 – Summarizes important information sources for the office review

Once sufficient background information is gathered, the information should be organized into a reference file. This information will be needed during the project (i.e. public notice and inquiry, statements to the press) and for the final report.

Table 1

Suggested Information Sources for PIC Office Evaluation

Information	**Source(s)**
Water Quality Data	MCPH, DOH, DOE
DOH Sanitary Surveys	DOH
MCPH OSS Sanitary Survey Data	MCPH
OSS Sewage Permit	Mason County Parcel Files (Building 3)

Farms/Farm Plans	Mason Conservation District
Project area soil conditions	*Soil Survey of Mason County Washington* (USDA 1960)
Project area topography	Mason County GIS data, USGS topography maps, TOPO!
Complaint Information	MCPH
Zoning information	Mason County GIS data, Tidemark
Aerial photographs	MCGIS data, DOE Shoreline and Oblique aerials
WRIAs-Watershed Plans	MCDCD, DOE, MCPH
Property parcel information	Mason County Parcel Files (Building 3)

4.2.4 Initial Project Area Assessment

An initial area visit is recommended and should be used as a tool to:

- Identify stormwater drainage patterns
- Determine project boundaries
- Look for potentially inadequate animal waste management (livestock, pets or wildlife)

4.2.5 Field Preparation

1. Field Safety

Before setting out into the field for the initial project area visit or individual parcel inspections, it is essential to be mentally prepared, properly equipped and organized. Use the field equipment list (**Appendix F**) and other experienced field staff (Solid Waste program staff may be particularly useful) as a guide.

MCPH staff must read and be knowledgeable of the field safety and quality assurance and quality control sections (**Chapter 2.4, Chapter 3.0 and Chapter 4.2.9**) prior to initiating PIC projects. Please see Water Quality staff if there are any questions regarding readiness to proceed with the project before initiating project-related fieldwork

Personal safety in the field is extremely important. MCPH staff should always adhere to the guidelines herein when conducting field inspections and investigations. Refer to **Appendix J** for a discussion of property access and consent.

MCPH staff should “sign out” in Building 3. There are sign out sheets located on the Hscommon network drive on the computer or printed out in Building 3 next to the sign out clip board. Be sure to include the approximate sites (addresses if available) and the time you left and the approximate time you plan on returning. If you plan on returning from the field after the close of business, then coordinate to contact other water quality staff upon your return. They should attempt to contact each other. If contact can not be made, then the Environmental Health Manager should be contacted.

MCPH staff are encouraged to ask another staff member to “ride along” if they are uncomfortable visiting a particular property alone or if they want another “set of eyes” to assess a possible problem or violation. However, “ride alongs” are probably not always necessary for example consecutive visits (with owner/renter permission) to a property undergoing a dye test. Use your best professional judgment in determining when to ask for a “ride along” – safety is our first concern but financial impacts should be considered. There may be times, where it is more time efficient for

two people to go out into the field a together. For example, when doing the water quality survey it may be more efficient to have two people, one person to sample, GPS and take the salinity. The other person records the information on the Lab Fields Sheet, the site description in the field notebook and takes a photo(s) of the site.

Cut the interview short if the homeowner shows any signs of hostility. If an individual makes threatening gestures towards you, leave the property immediately. Do not inspect the property in this situation. Note on the form that you were denied entry. Inform your supervisor when you return to the office.

2. Handling Dogs

Dogs can be a major threat in the field. Training and informational materials can assist the MCPH staff to evaluate and avoid potentially dangerous situations. Dog treats can be an effective tool to make friends with dogs in a new project area. Pepper spray is available (use cautiously).

Prior to entering a property, look for signs of dogs, such as doghouses or kennels. Rattle the fence (if available) and/or call out your name and affiliation to draw attention to yourself. Usually, if there is a dog on the property, the dog will sense your arrival and bark. If you do not believe there are dogs present on the property, continue to follow the main path to the front door. If there is a dog on the property, use your best professional judgment to decide if the dog is friendly or not. If the dog is friendly, continue with your approach to the front door. If not, note the address of the home, and if possible, the homeowner's name, and contact the homeowner/occupant by phone to schedule an appointment. You can also leave your business card/door hanger at the door or gate with the date and time you were on the site and ask the residents to contact you.

3. Field Equipment List

A list and description of the standard and specialized equipment necessary to conduct inspections and investigations is located in **Appendix F**. Ordering new equipment and making repairs to existing equipment are handled through the designated staff. Report all instances of equipment breakage or loss as soon as possible to the Environmental Health manager and the designated field equipment staff.

4.2.6 Water Quality Evaluation

Gather and evaluate available water quality monitoring data for the area. A properly conducted shoreline evaluation helps to pinpoint FC pollution “hot-spots”, as well as develop baseline water quality data in the PIC areas.

See Chapter 2: Monitoring Parameters and Field Procedures for information on the specifics of collecting water samples. Once on the shoreline, collect water samples from all significant flowing discharge points including: stormwater outfalls, drains, bulkhead drains, drainage ditches and seeps. Sometimes discharges are too small to sample. The most representative samples are taken from free-flowing water.

Continue with the following steps once water quality samples have been analyzed:

1. **Confirmation Samples:** All sampled discharges with FC results identified as “hot-spots” will need of confirmation samples. “Hot-spots” may have different designations depending on the extent of the study. Normally they will be prioritized as listed in Table 2, below. All “hot-spots” shall be re-sampled for verification of FC contamination as soon as possible. Work with the lab to coordinate re-sampling.
2. **Sample Prioritization:** Prioritize “hot spots” for investigation by calculating the geometric mean value (GMV) of the initial and confirmation sample. Rank in priority order with the highest GMVs. The general prioritization is described in Table 2.

Table 2
Fecal Coliform Sample Result Prioritization

Indicator Organism	High Priority	Medium Priority	Low Priority
Fecal Coliform (FC)	≥500 FC/100mL	200 to 499 FC/100mL	<200 FC/100mL

4.2.7 Post Water Quality Evaluation Public Notification

Public notification is the key to high participation by project area property owners and residents. After the office evaluation, initial project area visit, and water quality evaluation are complete, the public within the PIC boundary is notified of the Health Department's intent to conduct a PIC.

The information presented should be direct, concise, and complete. The information should contain, at minimum:

- Why and where the PIC is being conducted;
- Who is doing the PIC, and by what authority;
- How and when the PIC will be conducted;
- What will happen when an OSS is found to be failing;
- What will happen when parcels are found to have inadequate animal waste management; and
- Who to contact for answers to questions.

Assistance in developing the format and content of PIC project information and the choice of how to distribute the information to the public is made in consultation with the Environmental Health Manager.

MCPH may issue a press release discussing the reasons for the project, the time frame for completion, and the time and location of a public meeting where residents can learn more about the project. The Environmental Health Manager must approve all press releases before they are disseminated. Door hangers, sign postings, utility bill enclosures, etc., can also be effectively utilized depending upon the target audience and time frame.

During the first contact with the public, it is very important that the MCPH staff be confident, cordial, well organized, and professional. Remember that you will be inspecting private properties to identify pollution sources. Your job will be much easier if the public's perception of you is that of an objective and trustworthy professional. Knowing the name of the resident on return visits is professional and personable. Although MCPH staff have the legal right to access a property marked “No Trespassing”,

PIC staff offer a higher level of respect to the property owner by leaving the doorhanger in a plastic bag tacked to a gate or fence post.

The informational public meeting is held at a location as close as possible to the project area. The Health Department presents a short program of water quality and project information and answers questions. Try to identify any local community groups to determine and address their water quality concerns. Invite other interested parties in the local area to be available to answer questions related to water quality in the watershed including the Mason Conservation District. Local government representatives should also be invited including the area County Commissioner, the Mayor and City Council (if applicable), and the Ecology Grant Officer.

The MCPH has found that serving light refreshments helps build relationships. Consider holding two meetings – from 2 p.m. to 4 p.m. and from 6 p.m. to 8 p.m. – in areas where residents and owners may prefer not to drive at night.

4.2.8 Property Parcel Inspection

Property parcel inspections will occur where levels of fecal coliform have been elevated as documented by the water quality evaluation. The purpose of the property parcel inspection is to determine if the FC pollution source(s) are originating from the property. This may include assessing the property with the methods outlined in the Sanitary Survey Procedure (**Chapter 4.1**).

Property parcel inspection should consist of the following:

1. Contacting the property owner/occupant for a preliminary interview;
2. Obtaining access and consent to perform a field inspection and assessment of OSS performance; and
3. Obtaining access and consent to perform a field inspection and assessment of other potential sources of fecal pollution.

1. Contacting the Property Owner/Occupant, preliminary interview

Three attempts are made to contact each property owner/occupant by phone messages or a non-enforcement door hanger left at the door with a note. You may use the owner's name to look up the phone number in the phone book.

A letter is sent to the property owner requesting participation if there is no response. You may look up the most current mailing address by parcel number or site address on the Mason County Web Page or from AS400. Property parcels where the owner/resident does not respond are rated "Did Not Participate". Non-participating properties are evaluated by reviewing any OSS records on file and determining the proximity of surface waters to the property. Those parcels draining to surface waters should be investigated during wet weather conditions by collecting water samples leaving and entering the property. Roadside ditches are considered waters of the state and any surface waters flowing in or into them may be legally sampled.

Inspectors will attempt to contact non-participating owners of properties with surface water flows that equal or exceed 200 FC/100ml to request a dye test of the OSS and/or field inspection of their animal waste management practices. If consent is not given, staff may make a referral to the Prosecutor (as outlined in Mason County Section Two, Environmental Health, Policies and Procedures IV. I and Section Three I. B). Contact the Environmental Health manager before taking any action.

2. Interview

Inspectors conduct owner or occupant interviews in person or by phone. Record the interview information on the survey form **(Appendix A)**. Record the owner/occupant's answers carefully, and answer all questions honestly and to the best of your ability. If you do not know an answer, indicate that you will find out. Field visits are excellent opportunities to distribute educational materials. Water Quality program brochures are a good resource for information regarding pollution sources. Educating the public is the most effective tool the Health Department has to prevent future fecal pollution.

At this point in the inspection continue with the Sanitary Survey Procedures as detailed in **Chapter 4.1**.

3. Field Inspection and Assessment of OSS Performance

Two copies of OSS records for each individual property parcel that is going to be investigated within the project area are made for use during the individual property inspections. The copies are attached to a PIC survey form (**Section 4.2.8 (1)** for discussion and **Appendix A** for an example). One copy is distributed to the homeowner/occupant during the survey for their records.

Staff must be sure to obtain clear consent from the property owner and/or renter to conduct the survey. Refer to **Appendix J** for specific details about property access and consent. If you are refused consent, bring the information back to the office to discuss it with the Environmental Health manager.

4.2.9 Quality Assurance and Quality Control

Please read all pertaining QA/QC procedures in **Chapter 2** and **Chapter 3** previous to going out to the field to sample.

Proper technique for collecting, labeling and transporting samples is critical to ensure that sampling data is valid. Valid sampling data ensures good project results, making any potential court case watertight. A lab field sheet (chain of custody) will accompany all samples until relinquished to the lab. Refer to **Chapter 2**, Monitoring Parameters and Field Procedures, for all monitoring procedures.

4.2.10 Data Evaluation and Report Writing

Grant contracts specify reporting requirements - generally quarterly. All reports are stored on the common computer directory (J:hscommon/Water Quality/projects/ongoing/*appropriate folder for specific project)*. See Water Quality staff for details. For additional information on file organization see the documents titled, "*A document to navigate through this folder"* and *"Notes on File Organization,"* both of which are located *J:hscommon/Water Quality.*

A comprehensive report detailing and explaining results of the PIC will be prepared at the end of the project. Develop and submit a report outline, create first draft, spell check the first draft and e-mail to WQ staff for peer review. When satisfied with the content and readability of the report, e-mail it to the Environmental Health manager for review. After discussing comments and making necessary

changes, the report can be e-mailed to the grant officer and the Environmental Health manager. A paper copy should be sent to the accountant. Then the report may be released.

4.2.11 Post-PIC Public Information

At the conclusion of the project, developing a public information feedback system may inform residents in the project area of the results of the PIC. This can include newsletters, the MCPH's web site, and library or fair displays.

4.2.12 Follow-up

Vacant property parcels, those with OSS systems categorized as suspect (**Chapter 4.1**, **Table 1**); and parcels classified as medium priority (**Chapter 4.1**, **Table 2**) may be re-inspected within one year of the initial evaluation, if time and a funding allows, pursuant to the procedures detailed in **Section 4.2.8**. Ask the owners/operators of such OSS for permission to re-inspect the OSS within a year. Property parcels with significant use changes may also be reinspected.

Shellfish and recreational beaches and/or state 303(d) listed impaired surface waters where PIC projects have been completed may be reviewed annually in order to determine water quality trends. Problem areas may be reviewed when Health Department's trend water quality monitoring or state Health water quality monitoring exceeds the state Water Quality standard. In the case of a threatened commercial shellfish area, inspectors may respond to high marine water FC counts by conducting a shoreline survey of the area and investigating any drainage where the GMV of the initial and confirmation sample exceeds 200 FC.

APPENDIX D.3
ShoreBank Enterprise Septic Loan Information

SHOREBANK ENTERPRISE CASCADIA
Let's change the world.®

SHOREBANK
SEPTIC LOAN

You can qualify for a loan with zero out-of-pocket costs and interest rates as low as 2% to repair or replace your septic system in Mason, Jefferson and Kitsap counties.

1. ***What is the ShoreBank Septic Loan Program?*** The ShoreBank Septic Loan offers low cost loans for septic system repair or replacement to property owners in Jefferson, Kitsap, and Mason counties. The loan is made possible through the cooperation of private and public organizations, and is administered by the non-profit lender ShoreBank Enterprise Cascadia.
2. ***What is ShoreBank Enterprise Cascadia?*** ShoreBank Enterprise Cascadia is a non-profit lender. It is 12 years old and has offices in Shelton, Port Angeles, Port Townsend, Forks, Ilwaco and Seattle. We exist to support local economic, social and environmental health.
3. ***How do I apply?*** Applying is easy, visit our website at www.sbseptic.com, call our office at 360-427-2875, or visit our office at 221 W. Railroad, #12 in Shelton. You can apply over the phone, on-line, or in person.
4. ***How much will it cost me?*** The loan will cover 100% of your costs. You can reduce your loan amount and monthly costs by choosing to pay a portion of the costs yourself. Loan interest and payments are based on income.
5. ***What are the impacts to me of borrowing***? You are taking out a mortgage on your property to secure this loan. You will sign legal papers similar to your other mortgages. Just like any other loan, you must fulfill your loan obligations.
6. ***What if I have a bank loan already or credit problems in the past?*** We can approve your loan if you have other loans on your property. We can usually approve your loan if you have had credit problems in the past. We will work closely with you to find a way to finance your new or improved system.
7. ***What are my responsibilities?*** You must: (1) complete a loan application; (2) contract with a certified septic system designer/construction manager and installer; (3) sign loan agreements; (4) approve payments from your loan account; and (5) agree to use and maintain your septic system properly.
8. ***How soon can my septic system be repaired?*** Loan approval takes about 1 month once we have your completed application. The repair or replacement process can take up to several months from design to installation and then final inspection.
9. ***How do I find out if my septic system needs work?*** You can ask the person who pumps and maintains your system to do an inspection. Systems in sensitive environmental areas and those older than 20 years are good candidates for inspection. You can also ask your county health department for help.
10. ***Who will fix my septic system?*** In order to be eligible for a loan you must make arrangements with a certified septic designer of your choosing. This person will determine the best solution for you and help you to find a qualified contractor to install the repair/replacement. We can direct you to a list of certified designers in your county.
11. ***What are the interest rates and repayment requirements:*** While the money lasts, this is what we will do:

Annual Household Income	Interest Rate	Repayment Terms	Cost for $15,000 Loan
Up to $26,566	2%	No payments required; repaid at sale, transfer or refinance	Monthly payment: $0. After 10 years the balance would be $18,285
Between $26,567 and $35,420	4%	Interest only payments based on ½ of the rate (2%); other 2% added to loan, balance due on sale, transfer or refinance	Monthly payment: $25. After 10 years the balance would be $18,602.
Between $35,421 and $44,276	4%	Interest only payments, balance due on sale, transfer or refinance	Monthly payment: $50 After 10 years the balance would be $15,000.
More than $44,276	6%	Regular monthly payments based on a term not to exceed 15 years	Monthly payment: $129 After 10 years the remaining balance would be $6,506.

Protect your property value. Support local business and jobs. Keep our water clean.

ShoreBank Septic Loan
www.sbseptic.com
221 W. Railroad Ave, Suite 12
Shelton, WA 98584
360.427.2875
sbseptic@sbpac.com

APPENDIX E.1
Septic System Owner Maintenance Notification Flier Sample

Reminder Protect the life of your system. Protect the environment. Protect your health, your investment and your property.

Our records indicate that a non-conventional onsite septic system, such as an aerobic treatment unit, a Glendon, or some other proprietary system serves your property. These systems require annual inspection by a Certified Operation & Maintenance Specialist. Maintenance is very important to insure that your system is functioning properly. Annual maintenance inspections will help you avoid expensive repair costs. A non-functioning system could compromise public and environmental health. Please call if you have any questions. Below you will find a list of Operation & Maintenance Specialists who are certified to work in Mason County. If you have had your system inspected with in the past year, please send us a copy of your service report.

Mason County Certified Operation & Maintenance Specialists.

A & L Solutions	(360) 871-2898	Net Septic	(360) 923-1080
Action Onsite Services	(360) 876-6769	North Bay Land Development	(360) 275-9590
Active Underground	(360) 426-9277	Northwest Cascade, Inc.	(360) 866-3506
Alternative Septic Services	(360) 373-1066	Peninsula Excavating	(360) 426-4364
B-Line Construction, Inc.	(360) 426-4221	Pioneer Digging	(360) 426-1803
Flohawks	(800) 562-4442	R.J. Trends LLC	(360) 352-5736
Flohawks	(800) 356-4295	Rob’s Excavating	(360) 426-6697
Indigo Design	(360) 779-5233	Tahja-Syrett Designs	(360) 427-0255

Sources

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2) *Marine Recovery Area Guidance: Supplemental to the On-Site Sewage System Management Plan Guidance: For the Twelve Puget Sound Counties*, WA Department of Health: Division of Environmental Health, October 2006.
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14) *Title 16 Mason County Plats & Subdivisions Code*, Mason County Planning Department, January 2005 Revision.
15) *Mason County Development Regulations, Ordinance No. 82-96,* February 28, 2006 Revision.
16) *Operation & Maintenance Report* forms, Mason County Department of Health Services.
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18) *Annas Bay Closure Response Strategy,* Draft 2/7/2007, Seth Book, Mason County Public Health – Water Quality Program.
19) Mason County Water Lab Access database.

Contacts

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2) Cindy Waite, Mason Co Lead Environmental Health Specialist; 360-427-9670 ext 353
3) Penny Orth, Mason Co Environmental Health Specialist; 360-427-9670 ext 547
4) Lurleen Smith, Mason Co Public Works, GIS Manager; 360-427-9670, ext 769
5) Allan Borden, Planner, Mason Co Community Development, 360-427-9670 ext 365
6) Barb Robinson, Mason Co Community Development Deputy Director; has information on sensitive areas questions ; 360-427-9670 ext 603
7) Ben Ramsfield, Community Development, Database Technician; System Administrator for Environmental Health Tidemark Permitting Database; 360-427-9670, ext 290, 504
8) Scott Carmody, Carmody Data Services, Mason Co Env Health contracts Carmody as System Administrator for Carmody OSS O&M Database 608-347-9207, 608-347-9207 (mobile) – DeForest, Wisconsin.

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